

1894.

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# ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE

BOROUGH OF CREWE,

BY

HERBERT JONES,

L.R.C.S.I., L.S.A., D.P.H., CAMB., &c.

MEDICAL OFFICER OF HEALTH TO THE BOROUGH.

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CREWE:

WILMOT EARDLEY, BOROUGH PRINTING OFFICES.

1895.

# BOROUGH OF CREWE.

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## *Health Committee of the Corporation of Crewe*

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*Chairman :*

DR. WM. HODGSON, J.P., C.C.

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THE MAYOR (ALDERMAN McNEILL, J.P.).

ALDERMAN BRIGGS, J.P.

„ COTTERILL.

„ LATHAM.

„ PEDLEY, J.P.

„ WALLWORK, J.P.

COUNCILLOR AINSWORTH, J.P.

„ BAILEY.

„ COOK.

„ EAMES.

„ FEAR.

„ HEATH, J.P.

„ JERVIS.

„ JONES.

„ PEDLEY, C.C.

„ SMITH.

„ SWINTON, J.P.

„ TAYLOR.

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*Sanitary Inspector :*

WM. URQUHART.

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Population at Census, 1891	...	...	...	32,783
Estimated Population at the middle of 1894	...	...	...	35,950
Area in acres	...	...	...	2,193
Birth-rate per 1,000 living	...	...	...	33·7
Death-rate „ „	...	...	...	14·4
Death-rate from Zymotic diseases	...	...	...	1·3
Deaths under 1 year to 1,000 births	...	...	...	143
Deaths under 5 years—per cent. of total deaths	...	...	...	47·3
Number of persons to the acre	...	...	...	16

MUNICIPAL OFFICES,  
EARLE STREET,  
CREWE,

FEBRUARY 14TH, 1895.

To the Chairman and Members of the Health Committee.

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GENTLEMEN,

In the following pages I beg to submit to you my Report upon the sanitary condition of Crewe for the year ending December 31st, 1894.

No doubt the first matter to attract attention will be the exceptionally low death-rate, but this must be discounted to a certain extent by the very low rate which has been recorded in the whole of England and Wales, 16·6, and while the death-rate in Crewe, 14·4, is the lowest recorded since 1881, that for England and Wales is the lowest ever recorded, and 1·5 per 1,000 below the lowest previous rate, viz.: 18·1 in 1838.

The death-rate from the seven grouped zymotic diseases, though much lower than last year (page 23), is still capable of reduction, for it is not satisfactory, that with a general rate always lower than that of the whole country, yet our zymotic rate should rarely be less and often higher. Our rate of infantile mortality (page 28) compares unfavourably with that of England generally, where the rate among children under one year of age to 1,000 births was 137, in Crewe it was 143.

Among much minor work which has been carried out during the past year there stands out as of chief importance the erection of a Washington Lyon's Steam Disinfector (page 26), and the decision of the Health Committee to recommend the Corporation to erect an Isolation Hospital (page 24), a first step towards which has been taken in the purchase of five acres of land admirably situated for its purpose. Not of less consequence to the comfort as well as the health of the inhabitants, is the question of the ventilation of the sewers (page 34), which has been very carefully considered, and I quite hope that the methods which the Corporation have decided to adopt under the advice of the Borough Surveyor will effectually remedy the nuisance referred to.

I have gone rather fully (page 41) into the question of the provision of water-closets, and in order that you may see definitely the chief features of the most recent waste-water flushing-closets, in the provision of which Crewe was the pioneer, I have been enabled through the courtesy of the makers to give illustrations of three different types, and although there are other manufacturers than those represented, these are, I believe, representative of all.

#### **Area.**

The Area of the Borough of Crewe when incorporated in 1877, was 1,336 acres. By Local Government Board Order No. P. 770, which was confirmed by Local Government Boards' Provisional Orders Confirmation (No. 11) Act, 1892, and came into operation on November 9th, 1892, the limits of the Borough were extended to include parts of the Civil Parishes of Church Coppenhall, Shavington with Gresty, and Wistaston. The total Area of the present Borough is 2,193 acres. During 1894 the boundaries of the wards were very materially altered, and the ward in the centre of the town is now styled Central, instead of as formerly East ward. The acreage of the wards is as follows:—

Central ward	...	134 acres
West	„	676 „
North	„	942 „
South	„	441 „
Total for Borough of Crewe		<hr/> 2,193 „ <hr/>

**Height above Sea-level.**

Sewage Farm	...	...	125 feet.
The Valley	...	...	145 „
Market Hall	...	...	179 „
Site of Isolation Hospital			182 „
Nantwich Road	...	...	189 „
Hightown	...	...	200 „

**Nature of Sub-soil.**

A Sub-soil of stiff clay extends over the whole of the Borough. Very exceptionally, and in some instances only for a few superficial yards is there a sandy Sub-soil.

**Population.**

There is always more or less difficulty in estimating the population of a town which grows rapidly, and this difficulty is accentuated in the case of Crewe in consequence of the area of the Borough having been extended within the past two years, the added portion being taken from three distinct districts,—Ceppenhall, Shavington, and Wistaston. It is true that the Registrar General in the last census returns has revised in a foot-note the figures for Crewe Borough, in which he gives the population in 1891 as 32,783, and the number of inhabited houses as 6,542, but as we do not know the population of the same area in 1881 we cannot estimate the present population in the most usual way, by assuming that the annual increase in the current decade is equal to the average yearly increase of the ten years between 1881 and 1891. I am compelled therefore, to resort to other methods to ascertain the population of the town at Midsummer, 1894 (the statistics of each year are based upon the population at the middle of that year). If I deduct the number of deaths from the number of births in a certain period I obtain the “natural increase” in the population, and if to the census return of 1891 I add the “natural increase” between the date of that return and Midsummer, 1894, I obtain a population at that date of 34,875; and assuming that exactly the same number of persons come into and leave the town, this would be the population required. But by far the more satisfactory method is to add to the number of houses at the last census the number built since, deduct the empty houses and multiply the

result by the average number of persons per house found to pertain at the preceding census (in Crewe this was 5·0). These figures can then be checked from the books of the rate-collectors.

The adoption of this method has resulted as follows—

TABLE 1.—

Census, 1891—No. of Houses in Crewe	...	...	...	6817
No. of Houses built between the Census, 1891, and Midsummer, 1894	...	...	...	530
				<hr/>
Midsummer, 1894—No. of Houses in Crewe	...	...	...	7347
„ „ No. of Empty Houses	...	...	...	157
				<hr/>
„ „ Total of Inhabited Houses	...	...	...	7190
				<hr/>
Inhabited Houses.		Persons per House.		
7,190	x	5	=	35,950
				Estimated Population in 1894.

The following list of empty houses at Midsummer, 1894, has been supplied to me by the Assistant Overseer (Mr. A. Maywhort) whose ready assistance I gratefully acknowledge.

TABLE 2.—

Rateable Value ..	Under £5.	£5 under £10.	£10 under £20.	£20 under £30.	£40 under £50.	Total.
Central Ward ...	2	14	2	2	...	20
West Ward ...	...	47	6	...	1	54
North Ward ...	4	42	9	...	...	55
South Ward ...	1	16	9	2	...	28
<hr/>						
Borough of Crewe	7	119	26	4	1	157
Per centage of empty houses at each group of rateable values.	} 4	2	2	2	$\frac{1}{2}$	2



The Borough rate-collectors have afforded me most valuable information regarding the rateable values and the number of houses in the town. I am especially indebted to the Assistant-collector (Mr. P. O'Connor) for Table 3, for the compilation of which he devised a most ingenious method of extraction from the rate-books, whereby the work was very speedily accomplished, and at the same time accuracy was assured.

TABLE 3.—Number of houses on the rate-books SEPTEMBER 29th, 1894.

145 houses rated under ...		... £5 per annum.
5678	„ „ at £5 and under £10	„
1144	„ „ „ £10 „ £20	„
224	„ „ „ £20 „ £30	„
94	„ „ „ £30 „ £40	„
44	„ „ „ £40 „ £50	„
15	„ „ „ £50 „ £60	„
15	„ „ „ £60 „ £70	„
10	„ „ „ £70 „ £80	„
4	„ „ „ £80 „ £90	„
5	„ „ „ £90 „ £100	„
10	„ „ „ £100 „ £200	„
1 house	„ „ above £200	
<hr/> 7389 <hr/>		

From the above table it will be seen that 78 per cent. of the houses in Crewe are rated under £10 per annum, and 94 per cent. under £20 per annum.

The rateable value of the Borough in 1894 was £113,630, an increase of £1,847 upon that of 1893.

#### Population of Wards in 1894.

TABLE 4.—

Central Ward	...	9,545
West „	...	8,710
North „	...	8,260
South „	...	9,435

TABLE 5.—Population of Crewe before and since Incorporation—

Year.	Township.	Houses.			Persons.			Persons per house.
		Inhabited.	Building.	Uninhabited.	Males.	Females.	Total.	
1801	Church Coppenhall	54	...	5	108	133	241	4.4
	Monks „	19	...	..	52	69	121	6.3
1811	Church „	51	...	3	133	133	266	5.2
	Monks „	22	..	...	57	57	114	5.1
1821	Church „	65	...	...	183	183	366	5.6
	Monks „	25	...	...	81	65	146	5.8
1831	Church „	71	...	...	162	188	350	4.9
	Monks „	26	...	1	81	67	148	5.6
1841	Church „	92	...	1	293	251	544	5.9
	Monks „	33	...	1	113	90	203	6.1
1851	Church „	99	...	...	251	244	495	5.0
	Monks „	805	8	27	2335	2156	4491	5.5
1861	Church „	175	2	6	415	407	822	4.7
	Monks „	1473	18	17	4406	3753	8159	5.5
1871	Church „	424	...	30	1054	1040	2094	4.9
	Monks „	3457	35	243	9458	8352	17810	5.1
1881	Church „	577	2	38	1480	1399	2879	5.0
	Crewe Borough ...	4588	46	236	12657	11728	24385	5.3
1891	Church Coppenhall	860	14	49	2168	1997	4165	4.8
	Crewe Borough ..	5726	51	275	14816	13945	28761	5.0
1891	Crewe Borough extended...	6542					32783	5.0
1894	„ „ „	<b>7190</b>		<b>157</b>			<b>35950</b>	5.0



**New Houses.**

TABLE 6.—

	1891	1892	1893	1894
Plans passed ...	139	169	157	238
Houses completed ...	110	143	142	144

**Births.**

The number of Births registered during the year 1894, in Crewe, was 1,215, of which 629 were males, and 586 females, equal to a Birth-rate of 33·7 per 1,000 per annum. Of the 1,215 Births, 4·4 were illegitimate (in 1893 the per centage was 3·3). The Birth-rate is lower than that of any year since 1890, and is 1·0 per 1,000 per annum lower than the average rates of the ten preceding years.

The Birth-rate in England and Wales in 1894, was 29·6 per 1,000 population, the lowest rate ever recorded.

TABLE 7.—Comparing the actual number of Births and the Birth-rate with those of previous years—

	1886	1887	1888	1889	1890	1891	1892	1893	1894
1st quarter ...	281	229	263	236	240	264	273	288	290
2nd „ ...	270	252	237	239	230	256	262	342	300
3rd „ ...	236	230	233	232	245	255	284	305	313
4th „ ...	242	217	221	223	207	222	226	293	312
Whole year ...	1029	928	954	930	922	997	1045	1228	1215
Birth-rate for whole year ...	38·4	34·0	34·6	33·1	32·4	33·8	35·6	34·7	33·7

**Deaths.**

During the year 1894 there were registered in Crewe 520 Deaths, of which 272 were males, and 248 females—equal to a death-rate of 14.4 per 1,000. No adjustment has been made of deaths occurring in Institutions within or without the Borough. This rate is the lowest that has been recorded since 1881, when the rate was 14.1 per 1,000, and is 2.5 per 1,000 below the average rate of the preceding ten years.

The monthly death-rate varied from 10.6 in October to 21.9 in January.

There were eight uncertified deaths, equal to 1.5 per cent. of the total deaths; of the eight uncertified deaths four were of children under one day old, one each of children respectively three days, six months, seven months, and two years old.

During the year there were 34 still-born children brought to the cemetery for burial.

TABLE 8.—Monthly Death-rate from all causes—

		1893.		1894.
January	...	16.6	...	21.9
February	...	16.9	...	15.0
March ..	...	26.4	...	14.6
April ...	...	20.0	...	12.0
May ...	...	21.7	...	12.0
June ...	...	22.0	...	14.3
July ...	...	25.1	...	15.6
August ...	...	16.9	...	12.6
September	...	11.2	...	12.0
October ...	...	15.6	...	10.6
November	...	17.9	...	16.0
December	...	24.7	...	16.6

TABLE. 9.—Comparing the actual number of Deaths, and the Death-rate with those of previous years—

	1886	1887	1888	1889	1890	1891	1892	1893	1894
1st quarter ...	113	110	133	151	138	111	171	171	154
2nd „ ...	85	102	85	114	77	127	143	193	115
3rd „ ...	136	122	94	92	97	81	107	158	121
4th „ ...	107	137	112	106	131	124	106	172	130
Whole year ...	441	471	424	463	443	443	527	694	520
Death-rate for whole year ...	16·4	17·3	15·3	16·5	15·4	15·4	17·9	19·6	14·4

TABLE 10.—Apportioning the Deaths during 1894 to the wards giving the Death-rate and number of persons per acre—

WARD.	CENTRAL.		WEST.		NORTH.		SOUTH.	
PERSONS PER ACRE	71		12		8		21	
	Number of Deaths.	Death Rate.	Number of Deaths.	Death Rate.	Number of Deaths.	Death Rate.	Number of Deaths.	Death Rate.
1st quarter ...	52	21·7	32	14·6	39	18·7	31	13·0
2nd „ ...	25	10·4	30	13·7	29	13·9	32	13·4
3rd „ ...	32	13·4	34	15·3	25	12·0	29	12·2
4th „ ...	40	16·7	34	15·6	35	16·9	21	8·9
Whole year ...	149	15·6	130	14·9	128	15·4	113	11·9

TABLE 11.—Apportioning the Deaths during 1894 to the various age periods.

		Under 1 year	1 to 5	5 to 15	15 to 25	25 to 65	65 upwards	Total
Central Ward	...	45	12	7	8	45	32	149
West Ward	...	39	17	6	7	45	16	130
North Ward	...	56	23	5	6	26	12	128
South Ward	...	34	20	4	3	38	14	113
Borough of Crewe, 1894		174	72	22	24	154	74	520
„ „ 1893		211	139	38	19	181	106	694

### Infantile Mortality.

Although the Infantile Mortality rate has fallen from the high figure of 1893, it is very unsatisfactory to find that it still keeps much above the average of the past ten years. I cannot help thinking that some of these deaths must be due to the neglect—thoughtless and ignorant, not wilful neglect—of those who have the care of young children. I mean especially the thoughtlessness which does not appear to realise that children, like young plants, cannot bear sudden changes of temperature, that when being washed and dressed it is undesirable to have their naked bodies exposed to cold currents of air from windows and open doors, or that when a child is allowed to crawl about on the floor it is being chilled through by the sharp cutting draught that comes under the door, and which makes older persons put up their feet on a rug or a stool,—I mean the ignorance which places the digestive powers of a baby in arms on the same level with those of an able-bodied navvy, and which even if some difference be suspected, and the child be fed altogether on milk, cannot understand why the food which is passed through the unscaled

feeding-bottle or the dirty tube should have such untoward results as is so often seen. In this connection I may remark that I took care to ascertain how the children were fed who died during the year from Diarrhœa, or Tabes Mesenterica, and I found that not one of them had been brought up by the breast.

None of the mothers of the children who died from premature birth were engaged as workers in any of the clothing factories in the town.

TABLE 12.—Rates of Mortality of Children under one year of age, from principal infantile diseases, per 1,000 births—

	1893.		1894.	
	Total deaths.	Rate per 1,000 births.	Total deaths.	Rate per 1,000 births.
From all causes ...	211	171	174	143
Diarrhœa ...	65	52	6	4
Lung diseases ...	45	36	46	37
Convulsions ...	17	13	16	13
Premature birth ...	17	13	23	18
Tabes Mesenterica...	13	10	15	12
Measles ...	10	8	...	...
Whooping cough ...	7	5	8	6
Tubercular disease...	4	3	3	2
Debility ...	3	2	24	19

**Zymotic Diseases.**

TABLE 13.—Number of CASES of Zymotic Disease which have come to the knowledge of the Medical Officer of Health during 1894—

	Central.	West.	North.	South.	Borough of Crewe.
Small-pox ...	...	...	...	...	...
Measles ...	8	7	2	3	20
Scarlet-fever	30	35	20	20	105
Diphtheria ...	2	2	...	...	4
Whooping Cough...	8	16	13	13	50
Diarrhœa ...	10	15	7	10	42
Typhoid ...	4	4	6	4	18
Total ...	62	79	48	50	239

TABLE 14.—Average yearly death-rate per 1,000 during the 20 years—1874-1893.—

	<i>All causes.</i>		<i>Zymotic diseases.</i>	
England and Wales ...	21·0	...	2·6	...
Crewe ...	...	17·0	...	2·6

TABLE 15.—Average yearly death-rate *per million* during the 20 years—1874-1893.—

	<i>Small- pox.</i>	<i>Measles.</i>	<i>Scarlet- fever.</i>	<i>Typhoid fever.</i>
England and Wales ...	800	490	400	180
Crewe ...	100	450	600	260

The above tables (14-15) are exceedingly instructive in their relation to zymotic diseases. It will be noticed that during the 20 years dealt with, our average yearly zymotic death-rate has been exactly the same as that of the rest of England, notwithstanding the fact that the rate from all causes was 4·0 per 1,000 higher in



the whole country than in Crewe, and when we come to the individual diseases, we find that we have a death-ratio from small-pox only one-eighth that of the rest of England, from measles of about the same, and from scarlet-fever and typhoid-fever fifty per cent. higher—that is to say, the one disease (small-pox) which we have taken strong measures with, is the only one which compares favourably with all England; the two diseases (scarlet-fever and typhoid-fever) in which we compare unfavourably are just those which are specially cared for in other towns by means of notification, isolation, &c., two measures which at present we have not availed ourselves of. It is further interesting to note that the rate for England and Crewe of measles is practically the same, probably owing to the fact that nowhere are any special precautions taken to prevent its spread.

TABLE 16.—Number of Deaths from the seven principal *Zymotic Diseases* in the various wards, during 1894.

	Central.	West.	North.	South.
Small-pox ...	...	...	...	...
Measles ...	...	...	...	...
Scarlet-fever ...	1	2	2	3
Diphtheria ...	1	1	...	...
Whooping Cough ...	4	3	8	4
Diarrhœa ...	3	4	3	3
Typhoid ...	1	2	2	...
Total ...	10	12	15	10
Death-rate per 1,000 per annum ...	1·0	1·3	1·8	1·0

TABLE 17.—Number of deaths from the seven principal Zymotic Diseases during 1894, in the Borough of Crewe—

		Under 5 years.	Over 5 years.	TOTAL.
Small-pox	...	...	...	...
Measles	...	...	...	...
Scarlet-fever	...	6	2	8
Diphtheria	...	1	1	2
Whooping Cough		19	...	19
Diarrhoea	...	13	...	13
Typhoid	...	...	5	5
Total	...	39	8	47

Zymotic death-rate per 1,000, Crewe, 1.3.

„ „ „ England & Wales, (1.7.)

#### **Small-pox.**

There were no cases of Small-pox in the Borough during 1894.

VACCINATION.—Only a very small number of the children born in Crewe remain unvaccinated.

#### **Measles.**

During the 2nd and 3rd quarters of 1894 Measles was very prevalent in the town. There were happily no deaths directly attributed to the disease. The cases were confined chiefly to a large elementary school, and to the infant departments. I visited the school upon several occasions, and by sending home those children who appeared to be sickening, and prohibiting the attendance of other children from infected houses no doubt something was done to prevent the spread of the epidemic, but it must not be forgotten that in 1893 and 1892 Measles was epidemic in Crewe, with a resultant death-roll in the two years of 41 children,—it is more than probable therefore that we owe

our immunity last year to the fact that the majority of the children at susceptible ages were protected by a previous attack. At the same time I am confident that even with a fresh batch of unprotected children in the coming years very much may be done to lessen the high mortality that has hitherto prevailed from this disease.

### Scarlet-fever.

During the whole of 1894 Scarlet-fever has been present in the Borough. The number of cases which came to my knowledge during the year amounted to 105, though this by no means represents all the cases which existed. Of the eight deaths, six were among children under five years of age.

The houses of most of those affected have been disinfected, and during the last few months of the year clothing and other articles have been thoroughly disinfected in the steam disinfector. With the erection of the Sanatorium, which I hope I may be able to report next year as an accomplished fact, I trust we shall be able to lessen still more this disease, which in Crewe has long lost any right to be called epidemic, as for many years it appears to have been endemic.

In no instance during 1894 has milk been responsible for carrying the disease.

Death-rate per 1,000 per annum from Scarlet-fever, locating the fatal cases in 1894—

	Borough of Crewe	Central ward	West ward	North ward	South ward
1894	·2	·1	·2	·2	·3
1893	·5				
1892	·1	Oakley St.	Wistaston Rd West St.	Audley St. New St.	Nantwich Rd Edleston Rd. Walthall St.

### Whooping Cough.

During the first and the last months of 1894 Whooping Cough was very prevalent in all parts of the town, the death-rate being especially high in the North ward. Altogether 19 deaths were recorded due to this disease; in 1893 there were 15, and in 1892 23 deaths. I fear that this high rate will continue until parents and those who have the care of children realise the serious nature of the complaint.

Death-rate per 1,000 per annum from Whooping Cough, locating the fatal cases in 1894—

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	·5	·4	·3	·9	·4
1893	·4				
1892	·8				
		Crewe Street Sandbach St. Samuel St. Albert Street	St. Michael's View Flag Lane Roeback St.	Farrington Street Henry Street Stoneley Rd. Harding St. Sheppard St Earle Street Charlesworth Street Davenport Street	Hope Street Longford St. Railway St. Nantwich Road

### Diphtheria.

Very early in the year and during the last two months sporadic cases of Diphtheria cropped up, one death occurring in February and one in December. As far as practicable, by disinfection, the cleaning out of adjacent cess-pools, &c., I have endeavoured to lessen the spread of this disease.

Through the agency of the Friendly Societies notifications (page 27) I have heard of not a few cases of sore-throat, and have taken measures where practicable to improve the sanitary surroundings of those affected.

Death-rate per 1,000 per annum from Diphtheria, locating the fatal cases in 1894—

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	·05	·1	·1	...	...
1893	·5				
1892	·3				
		Albert Street	Flag Lane		

### Diarrhœa.

The notifications of cases of sickness which I received week by week from the Secretaries of Friendly Societies in the town, were also of the greatest service to me in dealing with cases of Summer Diarrhœa. Wherever I heard of a case of Diarrhœa in an adult I dealt as far as practicable with any insanitary condition which I found to exist. There were in all thirteen deaths from this disease, all among children under five years.

On page 43 will be found some statistics relating to the incidence of Diarrhœa in houses with and without water-closets.

Death-rate per 1,000 per annum from Diarrhœa, locating the fatal cases in 1894—

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	·3	·2	·4	·3	·4
1893	2·5				
1892	·8				
		Bank Street	Cemetery Rd Orchard St. Peel Street Hulme Street	Farrington Street Ridgway St. Meredith St.	Hope Street Lord Street Lockett St. Alton Street

### Typhoid Fever.

Although the death-rate from this disease is much lower than in 1893, it was prevalent in the town practically the whole year. I heard altogether of 18 cases, and five deaths resulted. In the second quarter of the year there were five cases with one death in one street in the North ward in three households; the houses are not crowded together, indeed they are exceptionally open to the surrounding country, at the end of each long garden attached to the cottages is situated a privy of some form, there are no water-closets; four houses have privy cess-pools, two compound privies, and the remaining 21 are provided with pails. I found all the pails in a very filthy condition, and that part of the closet occupied by the pails caked with filth. A sanitary labourer was sent up to thoroughly clean out the pails and closets, and the cess-pools and compound privies were emptied and disinfected. In none of the houses did I find direct communication with the sewer.

All the houses in which the fever existed were supplied with a privy pail, and after the thorough cleansing of the out-houses in the entire street no further cases occurred.

The milk supply was not responsible for any cases of Typhoid Fever.

Death-rate per 1,000 per annum from Typhoid Fever, locating the fatal cases in 1894—

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	·1	·1	·2	·2	...
1893	·2				
1892	·1				
		Cobden St.	Lincoln St. West Street	Cemetery Road Herbert St.	



**Pneumonia.**

Inflammation of the lungs caused fewer deaths than in 1893, the figures being 45 for 1894, and 90 for 1893. It is greatly to be deplored that of these 45 deaths 30 are to be found of young children. The same proportion too holds good as regards Bronchitis, of which disease 63 deaths were registered, and 41 were among children under five years.

Death-rate per 1,000 per annum from Pneumonia in Crewe—

1894	...	1·2
1893	...	2·5
1892	...	1·2

**Influenza.**

At the end of 1893 this disease was to be found in all parts of the town, and its prevalence continued during the first two months of 1894, with a resultant death-roll of six persons, four of whom were over 60 years of age. For the remainder of the year there have practically been no cases of Influenza in the Borough.

Death-rate per 1,000 per annum from Influenza, locating the fatal cases in 1894—

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	·15	·2	...	·2	·2
1893	·2				
1892	·3				
		Flag Lane Victoria St.	...	Underwood Lane Newdigate Street	Woodland Terrace Nantwich Road

**Phthisis.**

There were 35 deaths from Consumption during 1894, giving a death-rate of 1·0 per 1,000, which is equal to the average rate of the past nine years, but above that of the three preceding. Of these 35 deaths, 25 were among persons between 20 and 50 years of age, and this fact alone should cause us to consider whether we are doing all that can be done to lessen the incidence of a malady which has such far-reaching disastrous results. For the present I think we should endeavour to instil into the minds of the inhabitants generally that Consumption is an infectious disease, and that preventive measures should be taken to lessen its spread, at the same time insisting that healthy and sanitary surroundings are important factors which must always be taken into consideration.

	Borough of Crewe.	Central ward	West ward	North ward	South ward
1894	1·0	1·0	·8	·6	1·0
1893	·9				
1892	·8				

**Puerperal Fever.**

There were seven deaths from Puerperal Fever during the year, and as one case was the second which had occurred in the same house within two months, I caused the out-buildings as well as the rooms of the house to be thoroughly disinfected with perchloride solution before being lime-washed and renovated. Three other cases having been each attended by the same midwife nurse I advised her to discontinue her calling for a couple of weeks, and gave her instructions as to personal disinfection. No deaths from this cause have been recorded since.

TABLE 18.—Vital statistics of Crewe Borough.  
Death-rate per 1,000 per annum.

	Birth-rate.	All causes.	Zymotic	Respiratory.	Phthisis	Diarrhoea.	Children.		Per 1000 born under 1 year.
							Per cent. of total deaths under 1 year.	5 years	
1874	...	16.0	3.0	...	...	1.0	...	...	...
1875	...	20.0	5.1	...	...	.9	...	...	...
1876	...	15.0	2.0	...	...	.9	...	...	...
1877	37.4	15.3	2.2	...	...	.2	...	...	...
1878	35.1	19.8	4.9	...	...	1.8	...	...	...
1879	35.6	17.1	4.2	...	...	.1	...	...	...
1880	...	...	3.6	...	...	1.5	...	...	...
1881	36.6	14.1	2.0	...	...	...	...	...	...
1882	37.6	15.1	1.9	...	...	.7	...	...	...
1883	36.7	17.8	2.0	...	...	.4	...	...	...
<i>Average of above ten years.</i>	36.6	16.7	3.0	...	...	.8	...	...	...
1884	35.8	17.0	2.5	...	...	1.2	...	...	...
1885	34.4	18.3	2.6	...	...	.2	...	...	...
1886	38.4	16.4	2.6	2.2	1.2	1.4	27.6	37.8	118
1887	34.0	17.3	3.2	2.8	1.4	.5	28.8	46.7	146
1888	34.6	15.3	1.5	3.7	.8	.3	25.9	...	113
1889	33.1	16.5	2.2	3.0	1.3	.5	29.6	45.3	137
1890	32.4	15.4	1.8	3.1	1.2	.5	29.5	39.5	142
1891	33.8	15.4	1.2	4.3	.8	.4	29.3	39.5	130
1892	35.6	17.9	2.3	3.2	.8	.8	30.7	45.0	154
1893	34.7	19.6	5.3	4.4	.9	2.5	30.4	50.7	171
<i>Average of above ten years.</i>	34.6	16.9	2.5	3.3	1.0	.8	28.9	43.5	139
1894	33.7	14.4	1.3	2.9	1.0	.3	33.4	47.3	143

### Deaths in the Accident Hospital.

There were no deaths in the L. & N. W. Ry. Co.'s Hospital during the year; it is extremely gratifying also to be able to record that only two fatal accidents occurred in the Company's works.

### Inquests.

There were 30 inquests held during 1894, of which 15 were upon males, and 15 upon females. Nine of the 30 were upon children under one year.

TABLE 19.—Number of Inquests during the last 12 years—

1883	...	25	1889	...	26
1884	...	21	1890	...	35
1885	...	23	1891	...	23
1886	...	24	1892	...	28
1887	...	21	1893	...	27
1888	...	14	1894	...	30

TABLE 20.—Causes of death as recorded at Coroner's Inquests—

Suicide	...	...	1	Convulsions	...	3
Murder	...	...	1	Apoplexy	...	1
Drowning...	...	...	1	Epilepsy	...	1
Exposure to cold	...	...	1	Pneumonia	...	1
Burns	...	...	1	Syncope	...	1
Scalds	...	...	1	Heart disease	...	2
Overlain	...	...	1	Injury to spine	...	2
Asphyxia	...	...	2	Fall down stairs	...	2
Blood poisoning	...	...	2	Natural causes	...	25
Hæmorrhage	...	...	1			

### Isolation Hospitals.

**SMALLPOX.**—I am glad to be able to record that the Smallpox Hospital has not been used during the last year. It has been visited periodically by the Sanitary Inspector or by myself, and can, if required, be got ready at a few hours' notice. All the rooms and passages were white-washed in December.

**SCARLET FEVER, &c.**—I stated in my last annual report that a Sub-Committee had under consideration the provision of a hospital for the isolation of infectious diseases other than Smallpox. On February 27th, this Sub-committee reported to the

Health Committee that they considered it desirable to erect such an Isolation Hospital, the Medical Officer of Health was further instructed to get out an approximate estimate of the cost. On March 13th I presented to the Health Committee a general estimate of £4,000, for a hospital of 20 beds, and at a special meeting of the Committee, held on April 3rd, to consider this report, it was resolved, "That in the opinion of this Committee it is desirable to erect an Isolation Hospital for the Borough of Crewe, a Sub-Committee to be appointed to consider the matter, and report to the Health Committee thereon." This minute was confirmed by the Council on May 2nd. A Sub-Committee of seven members of the Health Committee having been appointed it met on May 29th, and appointed five of its members to inspect the neighbourhood, with the view of obtaining a suitable site. It would serve no useful purpose to go into the detailed work of this Sub-Committee; it is sufficient to say that it met on June 22nd and 29th, August 14th, 17th and 29th, and on September 5th, and had under consideration altogether six sites, varying in extent from three acres to thirty, and in price from £80 to £330 per acre. Acting upon the recommendation of a Special Health Committee, held on September 19th, the General Purposes Committee at their ordinary meeting, held October 11th, resolved "That this Committee recommend the Council to accept the offer of the representatives of the Gresty Estate to sell the plot of land marked 'G' on the plan submitted to the meeting, containing about five acres, at £150 per acre." This minute was confirmed by the Council on November 9th. The plot of land referred to is situated to the north of Middlewich Street, is very accessible from most parts of the town, stands in an elevated position, and has the open country all round it. A main sewer passes within fifty yards of the land. On November 27th, at a Special Health Committee, it was resolved to invite competitive plans for the erection of an Isolation Hospital to accommodate 30 patients, with administrative departments, laundry, and disinfecting arrangements; this minute was confirmed by the Council on December 5th. On December 13th the General Purposes Committee resolved that two premiums of £15 and £10 should be paid to the authors of the two designs adjudged respectively, of the



highest and second highest merit. Dr. F. S. Granger, M.A., of Nottingham University, having been appointed assessor, to assist the Committee, on December 24th detailed instructions were sent out to those architects who responded to the advertisements relating to the competition, and by February 18th, 1895, the various plans will be ready for submission to the Health Committee.

### **Disinfection.**

About seven tons of Disinfectants have been used during the year, carbolic powder (containing 15 per cent, of carbolic acid) and izal powder being employed. The night-soil men have practically an unlimited quantity, and are instructed to use it freely. The inhabitants generally are supplied gratis with packets of disinfectants upon applying at the Sanitary Inspector's office; in this way about 250 packets were distributed in 1894. The steam disinfector, which the Corporation decided, at the end of 1893, to purchase, was erected in October upon land adjoining the sewage pumping station, whence steam is obtained. The special disinfector chosen is the apparatus of Mr. Washington Lyon, manufactured by Messrs. Manlove, Alliott & Fryer, Nottingham, it is of a medium size, and cost £198. The other expenses entailed—including building—amounted to £96, the total summing up to £294. The loan sanctioned by the Local Government Board was for £300.

The first articles were disinfected on October 19th, and since then the apparatus has been several times in use. I believe that we shall find it will be worked most economically if we set aside one or two days a week for disinfection, but this is a matter which can only be decided as time goes on. At the end of the year I wrote to the neighbouring sanitary authorities offering to disinfect articles for them should occasion arise, and they have decided to avail themselves of the offer.



I do not anticipate any difficulty in obtaining the disinfection of articles from infected houses, although compulsory powers are provided under the 6th Section of the Infectious Disease (Prevention) Act, 1890, which reads as follows:—

“6.—Any local authority, or the Medical Officer of Health of any local authority, generally empowered by the authority in that behalf, may by notice in writing, require the owner of any bedding, clothing, or other articles which have been exposed to the infection of any infectious disease, to cause the same to be delivered over to an officer of the local authority for removal for the purpose of disinfection; and any person who fails to comply with such a requirement shall be liable to a penalty not exceeding ten pounds.”

### **Notification of Infectious Diseases.**

The time has arrived, I think, when the Infectious Disease (Notification) Act, 1889, should be adopted in Crewe. In the Twenty-second Annual Report of the Local Government Board, published in 1894, it is stated that of the 141 provincial towns having populations of more than 25,000 according to the last census, all but 10 have adopted the notification system. Since the publication of this report three of the 10 towns have adopted the act, so that Crewe is now one of the seven towns without Notification of Infectious Diseases. It is only fair to recall the fact that one of the very earliest acts of the Crewe Corporation was to adopt a system of voluntary notification. As long ago as 1877, twelve years before the general act came into force, a fee of 2/6 was paid to each Practitioner in the town who notified a case of infectious disease; but, amongst other reasons, as all the medical men in the town did not consent to notify, the scheme, after little more than a year's trial, fell through.

### **Notification of Sickness by Friendly Societies.**

I have long felt that sufficient use is not made of the returns of sickness received every week by the Secretaries of Friendly Societies, which might be made of the greatest service if dealt with in the aggregate. In the early part of last year I was fortunate enough to secure the sympathy of the Mayor (Councillor C. H. Pedley) in the matter, and at a meeting on April 16th, convened by him, of the Secretaries of the various Friendly Societies of the town, he invited them to co-operate with me by

sending me each week a list of the names and addresses of those who had been placed on the sick list during the past week, together with the name of the illness each one was suffering from. The Secretaries themselves unanimously resolved to recommend the society they individually represented to adopt the scheme, and with one exception the societies agreed to do so. From the end of April I have continued to receive these sick returns week by week, and have found the information contained in them most valuable. The task of "posting up" the cases under their respective street headings in a ledger kept for the purpose, is not a very heavy one, it rarely takes me more than an hour each week. I cannot help thinking that apart from the immediate value of this system of notification in pointing out conditions which require rectifying, it will be of no small service as a register of the house history of the town. As only eight months have elapsed since I first received these sick returns I do not propose to give any statistics, beyond mentioning that one-fourth of those members thrown on their club become so on account of accidents. Next year I shall hope to be able to present some statistics which I venture to think may be of value to the Friendly Societies themselves.

#### **Slaughter-houses.**

There are 14 registered Slaughter-houses in the Borough—six in the central ward, two in the west, one in the north, and five in the south. They have been periodically visited, and with one or two exceptions all the butchers seem anxious to carry out the bye-laws. On April 3rd, two who had been repeatedly warned, were summoned before the Magistrates for not providing covers for their offal tins, the cases were adjourned for a fortnight, during which time the covers were provided, and the costs having been paid by the defendant the summons in each instance was withdrawn. It seems a great pity the abattoirs at the Cattle Market are not more used. I feel sure that much would be done in this direction if a few of the largest butchers, some of whom slaughter in the very middle of the town, would set the example of slaughtering most of their cattle in Gresty Road, and thus avoid, when they purchase at the Cattle Market, the harrassing and worrying incidental to driving the animals through the streets of the town.

### **Diseased Meat.**

Two carcasses, one of a cow, the other of a pig, have been condemned during the year, but as attention was first drawn to them by the owners no action was taken in the matter.

On June 25th, two boxes of fish, on sale behind the Market Hall, were seized and condemned, the owner offering very considerable opposition; on July 10th he was fined £3 and costs, or one month's hard labour for exposing the fish for sale, and 5s. and costs or seven days' hard labour for the obstruction, the total amounting to £5 2s. 6d. The defendant was allowed a month to pay the fine in, at the expiration of which he came and asked me for further time, which I granted, to the extent of another month, but when this had expired he elected to undergo his term of imprisonment.

Most of the meat which comes into the market is of excellent quality, but there is some very indifferent, and on several occasions the vendors have been cautioned.

### **Milk-shops and Dairies.**

At the latter end of the year these were all inspected by the Sanitary Inspector and Medical Officer of Health. In several instances the amount of air-space provided for each cow was found to be too little, and in a few the most primitive notions as regards cleanliness appeared to prevail.

FOOD AND DRUGS ACT.—This Act is administered by the Cheshire County Council.

### **Bake-houses.**

There are 24 Bake-houses in the Borough, of which seven are in the central, five in the west, eight in the north, and four in the south ward. Most of them are kept in a fairly clean condition, but there is some laxness in carrying out the 34th section of the Factory and Workshops Act, 1878, which requires the walls and ceilings of the Bake-house where lime-washed, to be lime-washed every six months.

### Offensive Trades.

Bye-laws were adopted by the Corporation in 1883, with respect to the trade of a tripe-boiler, and during 1894 relating to that of a gut-scraper.

On July 24th, 1894, the Health Committee resolved to recommend the Council to consent in writing to the establishment or carrying on the trade of a tripe-boiler by the Crewe Cattle Market Company, at their premises in Gresty Road, a certain defined area to be prescribed. The resolution was confirmed by the Council on August 1st, but the Cattle Market Company have not at present availed themselves of it.

On October 30th, a gut-scraper was taken before the Justices, under the 95th section of the Public Health Act, 1875; the case was adjourned to allow defendant time to obtain premises where he could carry on his trade without offence to his neighbours, and subsequently withdrawn upon defendant paying the costs and undertaking not to continue his trade in the town after the end of the year 1894.

### Factories and Workshops.

Including the works of the L. & N. W. Ry. Co. there are 59 Factories and Workshops in the town, all of which have been visited during the year.

The Workshops come more especially under the care of the Sanitary Authority, I have therefore caused a register to be kept of them which contains the following particulars—

1. Name and address of owner or agent and name of occupier.
2. Description and position of workshop.
3. Purpose for which used.
4. Method of ventilation.
5. Method of heating.
6. Sanitary accommodation.
7. Measurement of workshop.
8. Number of persons workshop will accommodate during day time.
9. Number of persons workshop will accommodate during over time.
10. Number of gas-burners.



### **Common Lodging-houses.**

There are six registered Common Lodging-houses in the Borough—three in the central ward, one in the west, one in the north, and one in the south ward,—they can accommodate in the aggregate 105 lodgers. Details of the space per head given to each lodger and other particulars will be found on page 35 of my report for 1893.

I consider that even with the most constant and careful supervision it is impossible to keep these houses as we should wish. First of all, with one exception, they were none of them built for the special purpose they are now used, they are merely ordinary dwelling-houses adapted as well as circumstances would allow, and secondly, the small sum that is charged per night leaves no margin to allow the keepers to carry out more than our very barest requirements. We have, fortunately, had no outbreak of disease directly attributable to these houses; other towns have not been so fortunate, and have been put to considerable expense in stamping out an epidemic which has started in a house of a similar kind, and I fear that we shall one day be rudely awakened to the insecurity of our present position, unless we take steps to remedy it.

These steps are the erection and management by the Corporation of a lodging-house of its own—Part III. of the Housing of the Working Classes Act, 1890, gives distinct powers and great facilities for the carrying out of such a scheme, and as it involves no call whatever upon the rates of the town there ought to be no reason why its accomplishment should not be effected. Whatever difference of opinion may exist as to the desirability of the Corporation entering into competition with private enterprise, the provision of a Municipal Lodging-house stands I think in an exceptional position, and for the very special reason that a Common Lodging-house can only be carried on at a profit, where such a small sum as four-pence per night is charged, at the expense of the health of the occupants, but the Corporation are not anxious to make money by the undertaking, and are, moreover, exceptionally well able to obtain capital in the first instance on moderate terms.

### **House-to-House Inspection.**

During May, June and July, accompanied by the Sanitary Inspector, I made a very complete House-to-House Inspection. We noted especially the sanitary arrangements as regards the out offices at practically every house in the town, and particulars were subsequently entered under their respective street headings in a house-ledger. It is possible therefore to ascertain from this book the chief sanitary arrangements of each house in the Borough, and the readiness with which the information can be obtained will no doubt prove of great value. The ledger has been so arranged that other details can be added from time to time.

### **Examination of Houses.**

In my report for 1893, I stated that in November public notice was given to the effect that any person might have his house examined as to its sanitary condition free of charge. This step has been criticised upon two grounds—first, that it might lead to friction with local surveyors, who would resent the sanitary department undertaking work for nothing which they would expect to be paid for; and secondly, it was pointed out that a large amount of extra work might be thrown on the officials, which could only be accomplished at the expense of neglecting more important duties. No doubt in some towns these objections would be found to operate, but in a town in which 78 per cent. of the houses are rated under £10 per annum they can hardly apply. The number of houses examined in 1894 was less than a score, and I am quite sure that not one of those who asked for the examination would have been able, even if willing, to pay a fee to a surveyor for the inspection.

### **Houses Let in Lodgings.**

The Model bye-laws relating to Houses Let in Lodgings were adopted in 1877.

### **Adoptive Acts.**

The Public Health Acts Amendment Act, 1890, and the Infectious Disease (Prevention) Act, 1890, have been adopted by the Corporation.



### Water.

I have made regular monthly analyses of the Water supplied to the town from the Artisean Wells at Whitmore, by the L. & N. W. Ry. Co., and have found it of uniformly good quality, varying only a few degrees in hardness.

### School Accommodation.

The public School Accommodation in the Borough is 6,716, apportioned to the wards as follows :—

				Per cent. of Population.
Central ward	...	2,657	...	27
West ward	...	1,663	...	19
North ward	...	1,118	...	14
South ward	...	1,278	...	13

These numbers are less than those given last year, in consequence of the Education department insisting upon the provision of cloak-room accommodation, for which in four schools class-rooms have had to be taken.

During the year I have visited all the schools; upon one occasion I found very serious overcrowding, and upon several the rooms have had their complement of pupils. The new schools which are about to be built may possibly lessen this evil somewhat.

The sanitary arrangements at all the day schools leaves very little to be desired, with four exceptions automatic flushing latrines are used, and are found to act remarkably well. One of the exceptional schools now has ordinary wash-down water-closets, which I induced the Managers—though not without great difficulty—to put in to replace six Rochdale pails.

In one school a curious combination of careless workmanship and accidental mishap might have resulted in more serious mischief than fortunately was the case. The head-teacher complained to me of a most unpleasant smell coming from the corner of a class-room, in which was placed a cupboard containing a gas meter; in the play-ground immediately outside, I found a rain-water fall pipe going directly into the drain, and upon

excavating there was found to be practically no proper connection between the end of the fall-pipe and the drain; it was further found that where the gas-pipe entered the building under ground no attempt had been made to close up the aperture around the pipe, there was a ready entrance therefore for sewer-gas from the untrapped drain into the schoolroom, the more ready too because the bottom of the fall-pipe was plugged with a child's india-rubber ball, which had no doubt been thrown upon the roof, and so rolled along the eaves gutter down the pipe.

I have again to acknowledge my indebtedness to the School Attendance Officer, and also to the head teachers for their assistance in reporting to me the cases of illness which have come under their notice.

It would be an undoubted boon to the town if one or more open spaces could be provided as play-grounds for the children, who are usually found playing, either in the streets themselves, or worse still, at the backs of houses in the midst of evil-smelling ash-pits.

### **Ventilation of Sewers.**

Frequent complaints have been made of foul smells coming from the man-hole ventilators in the middle of the street, and also from the gulleys at the sides. The Borough Surveyor and the Medical Officer of Health were instructed in October to report upon the matter, and each made very similar suggestions, and after being considered by a Joint Sub-Committee of the Works and Health Committees, the following recommendations were made and accepted by the Council—

(1st) To deal first with all the offensive man-holes and gullies, filling up all the inverts of such, to the level of the sewer.

(2nd) If the offensiveness still continues, to take into consideration the surrounding property as regards slaughter-houses, &c., and take the temperature of the sewage in successive man-holes, in order to ascertain if any steam or heated water is finding its way into the sewer.

(3rd) If negative results follow, to place an upcast shaft reasonably near the offending man-hole; and

(4th) If this does not remedy the nuisance, to have the road sewers trapped at their entrance into the main sewer.

It was further resolved, in view of the fourth recommendation, that enquiries be made as to the feasibility of erecting one or two furnace shafts along the line of the Southern Outfall Sewer.

*The following is the text of my Report which was laid before the Joint-Committee on November 27th.*

“There is not the least doubt that if we rely solely upon street level manhole openings, and upcast shafts, the former to act as inlets and the latter as outlets, we shall only be met with disappointments and with complaints from the inhabitants. We know both practically from using the anemometer, and also theoretically that the inlet cannot be depended upon to act as such, and that the whole cause of our troubles in the matter arises from it acting very frequently as an “outlet,” owing chiefly to the following varying conditions.

**BAROMETRIC PRESSURE.**—When the barometer falls the tension of the air is lessened—the air expands—and must find its way out of the sewer somewhere, actually doing so at the manholes, upcast shafts, and untrapped gullies.

**INFLUENCE OF TEMPERATURE.**—There is a tendency of the air in the sewers and out to become of an equal temperature; hence an interchange will constantly be taking place at the most convenient opening.

**CONTRIBUTORY DRAINS.**—The sewer does not always contain the same amount of sewage, and therefore of air; indeed there must be variations in the proportions of the two almost momentarily. As the level of the sewage falls air must come in to take its place; as it rises the sewer air must be forced out *somewhere*. And as it is very frequently the case that contributory drains are close to or actually in the manhole, every time such drain empties its contents into the sewer a corresponding amount of air is displaced, and comes up through the perforated opening into the street.

It must first of all be laid down that fresh sewage is not offensive. It follows, therefore, that in order to avoid any foul smells coming from either manholes or gullies, or from upcast shafts, or from finding their way into houses, we must remove the contents of the sewers as rapidly as possible; in other words, we must not let there be any deposit in the line of sewer.

This can be achieved with, 1st—A sufficient fall.

2nd—Judicious flushing.

3rd—The avoidance of any mechanical obstruction in the course of the sewer.

Where the sewer widens out at a manhole, unless the stream is very swift, there must be ample time for a deposit to take place as the sewage stagnates in the corners of the manhole. And this is much more so when the floor of the manhole is flat and upon a lower level than the sewer as it enters and leaves. Again, as the manholes are supplied with perforated covers a certain amount, and at times a very large quantity of dirt is washed down, which acts as a further impediment to the flow in the sewer, entangling the more or less solid matter, and retaining it there until it decomposes, and makes its presence known in the street above in an unmistakable manner. Now the remedy for this condition is obvious, and no amount of air shafts would remedy such. But even if the manholes are kept scrupulously clean, it is not possible to prevent sewers smelling unless some other measures are adopted. For instance, as the Borough Surveyor has so frequently pointed out, through faulty workmanship or other causes there may be a temporary blocking in the course of a house drain before it enters the main sewer, the drain gets fuller and fuller, and by the time it is unblocked either by mechanical means or naturally after a heavy rainstorm, a large mass of foul smelling decomposed matter finds its way into the sewer, and under proper conditions of the atmosphere evil-smelling emanations come into the street through the manholes or gullies. Again, if it were possible to keep the air in the sewer of the same temperature as that in the road above, we should have fewer complaints as to the bad smells from sewers. This is, of course, an impossibility; at the same time we must be on the look-



out for any cause which unduly or suddenly alters the temperature in the sewer itself, such as the discharge into it of steam or hot water. (The P. H. Acts Amendment Act, 1890, provides that no waste steam, condensing water, heated water, or other liquid of a higher temperature than 110 deg. F. shall be allowed to enter a sewer).

**PRACTICAL CONCLUSIONS.**—Wherever offensive emanations from a sewer are found to exist, proceed systematically—

1st.—Clean out the manhole thoroughly well, and flush the length of sewer. (If necessary raise and “invert” the floor of the manhole, and round off any angles).

2nd.—If the offensiveness still continues, take under consideration the surrounding property as regards slaughter-houses, &c., and take the temperature of the sewage in successive manholes, in order to ascertain if any steam or heated water is finding its way into the sewer.

3rd.—If negative results follow, place an upcast shaft reasonably near the offending manhole,

4th.—If there are still offensive odours place in the manhole a “Caink ventilator.”

5th.—If this does not remedy the nuisance, close up the openings in the manhole.

Where there is not much fall, or where from practical experience it is found that a certain manhole or a portion of the sewer is a “sewer of deposit,” an automatic flushing tank should be placed, care being taken to have an upcast shaft on the far side of the outlet from the tank, as an outlet for the air of the sewer displaced when the tank discharges itself.”

### **Ashpits and Refuse Removal.**

I went rather fully in my report of 1893, into this question, and I have little to add to what I then wrote. With the willing assistance of the Sanitary Inspector and the Foreman, I have effected economies in the administration of this special department. From March 25th last, the Farm Committee consented to reduce the high price that had hitherto been charged to the Sanitary department for horse hire; though the present price of 21/- per week for each horse is very much more than it would cost if we had the horses entirely under our charge.

I have endeavoured to arrange with some of the neighbouring farmers to fetch nightsoil with their own carts, or we have lent them carts, and no doubt some little saving has been effected in this way, though it has been done at times at the expense of great irregularity in the work, if for instance the farmer fails to keep his appointment on a certain night, several streets may have their privies neglected. One large farmer took away two loads regularly each night for several months, and he informs me that after going carefully into the cost of cartage, subsequent mixing with sand, and distribution on his land, he is of opinion that manuring in this way will be twice as costly as any other. He has now discontinued taking any nightsoil, but I shall await with interest his report upon the crops which he has grown from that which he carted last year.

Taking into consideration the difficulties under which the sanitary labourers work, I consider that the work is done well. I should like to be able to adopt a more periodical emptying; and in the day time this has been very nearly accomplished, but for the night work we are severely handicapped with the variety of privies which are in use. That the work is not carried out less satisfactorily than formerly is shewn I think from the fact that in 1893 on an average twenty notices were sent in daily requiring ashpits emptying, last year this average had dropped to fifteen. The average number of orders left on the book too, at the end of each month, was in 1893, forty-five, and last year, fourteen. It is gratifying also to find that the cost per head has been reduced from 16 and  $\frac{1}{3}$ ths of a penny to 14 and  $\frac{1}{3}$ ths.



From the 25th December, 1894, all the houses in the town have been dealt with by the Sanitary department, up to that date 102 houses in the South ward had their ashpits emptied by a contractor.

In November, one of the sanitary labourers who is engaged on night work was attacked with typhoid fever, and as it is probable he contracted the disease in the discharge of his work, he was paid his ordinary wages during his illness, from which he is now convalescent.

As the result of the visit which was paid during November, 1893, by a Sub-Committee of the Health Committee to various towns in Yorkshire, with a view of inspecting different types of destructors, one of the boilers at the pumping station on the sewage farm was fitted with Meldrum's steam jet blower and closed furnace, in order to burn up the dry refuse of the town in place of slack. As the blower has been used only very intermittently with ashes, it is not possible to report very fully. During the first two weeks of November, 1894, however, the Borough Surveyor made some very exhaustive trials, weighing the fuel used, measuring the water evaporated, and going into every detail. He reported on December 10th to the Farm Committee that even with the extra cost of employing an additional stoker very considerable saving would accrue if these blowers are used. Further and more extended trials will be carried out during the year, and I have no doubt we shall find our expectations realised.

A very large quantity of dry ashes have been emptied into a sand-pit situated on the southern side of the sewage farm. Although this "tip" does not adjoin any highway or dwellings, I consider it very undesirable to continue its use, especially in view of its proximity to the Queen's Park and the new Cottage Hospital. I am distinctly of opinion that the most rational as well as the most economical method of dealing with dry refuse is to destroy it by burning, and then put to some useful purpose the steam-power produced.

TABLE 21.—Cost of ashpit emptying—

	Cost per head.	Monthly unexecuted orders.
1878	11 1-10th penny	26
1879	11 9-10ths „	21
1880	12 1-10th „	16
1881	12 5-10ths „	17
1882	10 8-10ths „	20
1883	10 5-10ths „	30
1884	11 7-10ths „	30
1885	12 4-10ths „	22
1886	12 2-10ths „	29
1887	12 5-10ths „	37
1888	12 1-10th „	48
1889	12 8-10ths „	43
1890	13 2-10ths „	59
1891	13 8-10ths „	72
1892	16 8-10ths „	106
1893	16 3-10ths „	45
1894	14 6-10ths „	14

### **Re-construction of Privies and Ash-pits.**

This question of Re-construction appears to have been before the governing body of the town for a very considerable number of years. As far back as the beginning of 1882 the Sanitary Inspector was instructed to make out a list of all uncovered Ash-pits in the Borough. The list was evidently so appalling that he was told upon presenting it to report as to which he considered were insufficient, under the 36th Sec. of the Public Health Act, 1875; he accordingly reported first of all upon 211, and subsequently month by month, until by the end of 1883 notices had been served requiring the re-construction of no fewer than 723 of these out-buildings, that is to say, about every sixth house having a privy required it repairing, if not altogether re-building; and during the next ten years—up to the end of 1893—as many as 1810 notices had been served.

I cannot help thinking that there must be something wrong if property owners are to be put to the expense of re-building a portion of their property every 10 or 12 years. So much indeed was I impressed with the gravity of this constant charge upon them, and so difficult did I find it to believe it could be necessary, that early in the year I determined to see personally every case before the Sanitary Inspector reported under the 36th section; but after making the necessary inspections I was convinced that however hard it might be upon the owner to have to spend money on his property, it was very much harder upon the tenant to be obliged to live under such insanitary and objectional conditions as I found to exist. It must be remembered too that very frequently action is not taken until the situation may be almost unbearable, so that for months maybe before a remedy is applied the householder has to put up with a great deal of inconvenience, and subject his family to no little danger.

Take the very simplest instance of a leaking privy pail. Let us suppose that there is a hole in the side of a pail half way up, and that it is not noticed until the occupier of the house complains that the sanitary labourers spill the contents over the yard when emptying, the spilling in reality taking place through the hole in the pail. The Sanitary Inspector finds on investigation that

the pail wants renewing, and he writes to the owner of the house asking him to supply a new pail. If the owner ignores the letter the Inspector reports in due course to the Health Committee, who pass a resolution under the 36th sec., in three weeks' time the Council confirms the minute of the Committee, the statutory notice is served, and at the end perhaps of three months from the date when the tenant first reported the matter a new pail is provided. In the meantime, the portion of the privy under the seat has become well soaked with the pail contents, a permanent nuisance ensues, and one moreover that is extremely difficult to remedy.

It may be said by some that these out-buildings are frequently put up in anything but a satisfactory manner, that the work in them is often scamped, and this may be true to a certain extent, but it must not be forgotten that they are subjected to wear and tear of no ordinary kind. Is a privy-pail in use? then 52 times a year it has to be taken out of the building and replaced. Is an old-fashioned privy or a cess-pool provided? then six or eight times yearly it has to be emptied, and the walls of the structure knocked about by the spades or buckets of the labourers, who are working under the worst possible conditions, at night time, with little if any light, in all weathers, and urged on by their foreman to get through their work as speedily as possible, in order to lessen the nuisance that must necessarily be caused even under the most advantageous conditions.

I am quite aware that in country districts, where sewers and means of disposing of sewage on a large scale are quite absent, privies, and cess-pools, and pails are of necessity largely used, and no exception can be taken to them, for as they are often emptied in the day-time—the contents being at once put on the land or buried in a manure heap—the actual building is not so roughly used as it would be if the work were done at night. But the conditions of a sparsely-populated village are entirely different to those of a closely-built town like Crewe, though doubtless many of the houses whose out-buildings are now condemned were at the time of their erection so little built around that there could be little objection to the accommodation



provided. I cannot help thinking indeed that the cause of all our difficulties lies in the fact that Crewe has grown so rapidly, that the system which was a proper one when there were less than 1,000 houses in the town is most improper now that there are over 7,000.

There can be no doubt in the minds of any one who will consider the question in all its bearings, that the remedy for this constant and apparently never-ending worrying of property owners lies in the substitution of the under-ground water-carriage for the present above-ground cart-carriage system, which latter is not only the more insanitary and objectional, but is very much the more costly both to individual property owners and to the Corporation.

I will pass over the objectional features of the cart-carriage method which are only too apparent to all who have encountered the scavenging carts at night time, or who have been unable to escape up a friendly side street when meeting the procession of carts, journeying about 10 o'clock at night from the sewage farm to their respective districts. Coming to the effect upon health a very noticeable difference is found. I suppose there are few diseases more likely to be influenced by bad sanitary arrangements than diarrhoea, and in the summer months of 1893 there were recorded in Crewe 84 deaths from this disease. Taking the town as a whole, in each 1,000 houses provided with a W.C. there were six deaths from diarrhoea, and in each 1,000 houses with a privy of some kind there were 14 deaths, or more than double. But it may be urged, that the occupants of the houses with water-closets are in a better social position than those of the other houses. We will compare therefore groups of houses of the same rental, the same size, and occupied practically by the same class of tenant, who follow similar employments. In the first group, surrounding Christ Church, there are 250 houses each with a waste-water-closet, and here there were two deaths from diarrhoea. In the second group, including Lockett street, Station street, Railway street, &c., there are 270 houses, about 70 have waste-water-closets, and the remaining 200 have privies; here among the 70 water-closeted houses there was one death,



and among the 200 non-water-closeted there were seven deaths. Then in a third group of houses of a little better class, including Edleston road, Walthall street, Ruskin road, and Alton street, there are 750 houses, of which 300 have water-closets, and 450 have not. In the 300 houses there were two deaths, and in the 450 there were eight deaths. These figures are sufficiently striking without going into detailed percentages.

When comparing the original cost of a W.C. and of a privy, we must at once admit that the latter costs less, but we must not forget that there is to be added to the initial cost an annual charge for replacing pails, for repairing or replacing doors, or for actually re-building a portion of the structure, all these current charges being absent in the case of a water-closet. I am aware of the expense that may be entailed through the freezing of service-pipes, or through the stopping up of the discharge drain-pipe, and I have dealt with both further on.

In pointing out the saving that would accrue to the Corporation if the water-carriage system were more generally adopted, it will be necessary to differentiate between an ordinary wash-down closet supplied with town water, and a waste-water-closet which is flushed with waste water from the household sink, bath, &c.

With wash-down closets the cost of supplying 1,000 houses with 20 gallons of water each daily at nine-pence per 1,000 gallons would be £274 per annum.

With waste-water-closets there would be no charge entailed for water.

But the present cost of emptying the privies at 1,000 houses amounts to £375 yearly. A saving would therefore be effected in the case of wash-down closets of £101, and of waste-water closets of £375 per annum for each 1,000 houses, which means briefly that if every house which now has a privy were converted into a waste-water closet, there would be a yearly saving more than equal to a three-penny rate.

The additional cost of pumping at the sewage farm entailed by the extra quantity of sewage would be more than met by the

saving in the present cost of distributing the night-soil on the land; indeed, in the adoption of waste-water closets the added amount of sewage would be so small as to be almost inappreciable. If we had to lay out large sums of money, either in main drains or in establishing out-fall sewage works, there would doubtless be every reason for hesitating before adopting the water-carriage system generally. But we have already spent a capital sum of over £55,000 upon the sewage farm and main drainage works, and we pay annually over £3,000 in repayments and interest, it is not therefore unreasonable to urge that the sewage should be discharged into the sewers, and not carted through the streets at a yearly cost of over £1,800.

Before proceeding further let me say that I am not pleading for an immediate wholesale conversion of all the privies in the town into water-closets, but what I do most strongly urge is that where a privy is reported to the Health Committee as requiring re-construction it shall be re-constructed as a water-closet, either on the wash-down or on the waste-water system, unless there are sufficient reasons to the contrary.

There appear to me to be only two objections that can be brought against the water-carriage system, at any rate in this town,—I refer to the freezing of the supply pipes in the winter time, and to the stopping up of the discharge drain, owing to articles being carelessly thrown into the closet pan and thus choking the drain.

The first objection—the freezing of the water pipes—does not apply to waste-water closets, and it can be lessened, if not entirely abolished by placing the cistern in an unexposed part of the house,—in the case of an outside W.C., having one side adjoining a kitchen, there is no reason why the supply cistern should not be in the kitchen itself where it would be less likely to be affected by the frost, or a better plan still is to place a stop-tap in such a position that the water supply to the house can be turned off on frosty nights and the pipes then emptied of their water through the lowest tap in the house.

It must not be forgotten too, that however much the frost affects a W.C., the attendant inconvenience is not to be compared to that where a privy-pail is concerned. With the W.C. cistern empty and the supply frozen, it is yet an easy matter to pour into the pan a bucket or two of water; but with a privy-pail frozen to the ground, so immovable that it cannot be emptied, or if moved, with its contents so frozen that it can only be half emptied, the remedy is not so readily found.

The second objection—the choking of the drain by careless tenants is by no means insuperable, and from the descriptions in the following pages of the various makes of waste-water closets it is evident that the manufacturers of this class of appliance are fully alive to the necessity for overcoming it, and I think they have very nearly succeeded in doing so. I am of opinion too that the 16th Sec. of the Public Health Acts Amendment Act, 1890, will be of no little service to us in impressing upon householders that a water-closet is only to be used for its legitimate purpose, and not as a dust-bin or an ash-pit.

I propose to have the section printed in the form of a handbill and to supply copies to those property owners who wish to fix them inside water-closets on their property.

The text of the section is as follows:—

- “16—(1) It shall not be lawful for any person to throw, or suffer to be thrown, or to pass into any sewer of a local authority, or any drain communicating therewith, any matter or substance by which the free flow of the sewage, or surface, or storm water may be interfered with, or by which any such sewer or drain may be injured.
- (2) Every person offending against this enactment shall be liable to a penalty not exceeding ten pounds, and to a daily penalty not exceeding twenty shillings.”

I cannot help thinking that the amount of blocking of water-closets, especially of the waste-water type is somewhat exaggerated. And a great deal of that which does take place is due to the fact that the tenants have not been sufficiently impressed with the difference between the privy to which they have been so long accustomed, into which any substance might be thrown with impunity, and the water-closet which must only be used for its specific purpose.

### Waste-water Closets.

One of the earliest, if not the earliest form of Waste-water Closet, is that which is known as Fowler's, which was patented in 1872. In this, the waste-water from the sink-stone, &c., is merely allowed to run down a drain and to swill away the contents of a closet pan, without any attempt at providing a sudden flush. In 1878, Mr. Edwin Whiteman, the chief of the estate department of the L. & N. W. Ry. Co. in Crewe, devised what is now known as the "tumbler" or "tip pan" system, in which the waste-water from bath, sink-stone, &c., together with the rain from the roof, is conveyed by a suitable fall to a swinging receptacle of some four or five gallons capacity, in connection with the drain, and which, when full tilts over, discharging its contents into the drain close to the bottom of what is practically a very much lengthened closet pan. The tanks at first used were made of galvanised iron. The first closet of this type built in Crewe, and I suppose anywhere else, was erected by Mr. Whiteman in connection with the Christ Church Day Schools, and since then several hundreds have been put in both by the L. & N. W. Ry. Co., and by other property owners, until to-day there are in the town altogether some 650.

In November, 1879, the Borough Surveyor put before the Council a plan of a tumbler-closet on this same system, and in which he proposed that one tumbler tank should be used for each two closets. In reporting upon the system he expressed the opinion that the cost would be very much less than that of an ordinary wash-down closet, and only the price of the tank in excess of the cost of an ordinary privy. The present Surveyor (Mr. Eaton-Shore) informs me that the principal reason these closets have not been more extensively adopted in the town is their assumed liability to get stopped up. On page 46 I have pointed out the powers we possess to lessen this objection.

Although there are several towns who have a much greater number of this type of closet in use—Burnley and Southport more than ten times as many—yet I think the experience of Crewe must be all the more valuable, from the fact that the system has been in operation here very much longer than elsewhere.



On a previous page (43) I have shewn the great difference in the death-rates from diarrhoea during 1893 in property with and without waste-water closets; I am not anxious to attach too much importance to these figures, for I think the objectional features of the pail-privy and cess-pit privy are alone sufficient to condemn them.

Waste-water closets are objected to by some on the ground that water which is already foul is not the best to use for flushing purposes. This is perfectly true, but it should be remembered that the frequency of flushing must be set against the foulness of the flush. In a family of five persons a wash-down W.C. would be flushed on an average say five times daily, but a five-gallon tumbler would discharge ten times daily, allowing only ten gallons per head of water consumption daily, and this too is without taking into consideration the rain-fall.

The objection relating to the concentration of the sewage from waste-water closets and the difficulties which arise when it has to be dealt with at the central sewage works, I am unable to offer any opinion upon, for by the time the town sewage reaches our sewage farm it has become diluted by water from the Railway Company's works to such an extent, that whereas the average daily consumption of water per head is about ten gallons (giving with our population of 36,000, three hundred and sixty thousand gallons), we have to deal with a million gallons per day at the pumping station.

A last objection of which I will speak is that the inner sides of the pan between the seat and the flush are liable, and as a fact do become fouled. Although this is a very decided drawback to the use of this class of closet, yet, it is only fair to say that in this respect it differs little from the chronic condition of a pail, and that whereas the pail is never cleaned, merely a handful of some disinfectant powder being thrown in when it is emptied, an occasional bucket of water and a brush speedily remedies the offensiveness in a waste-water closet.



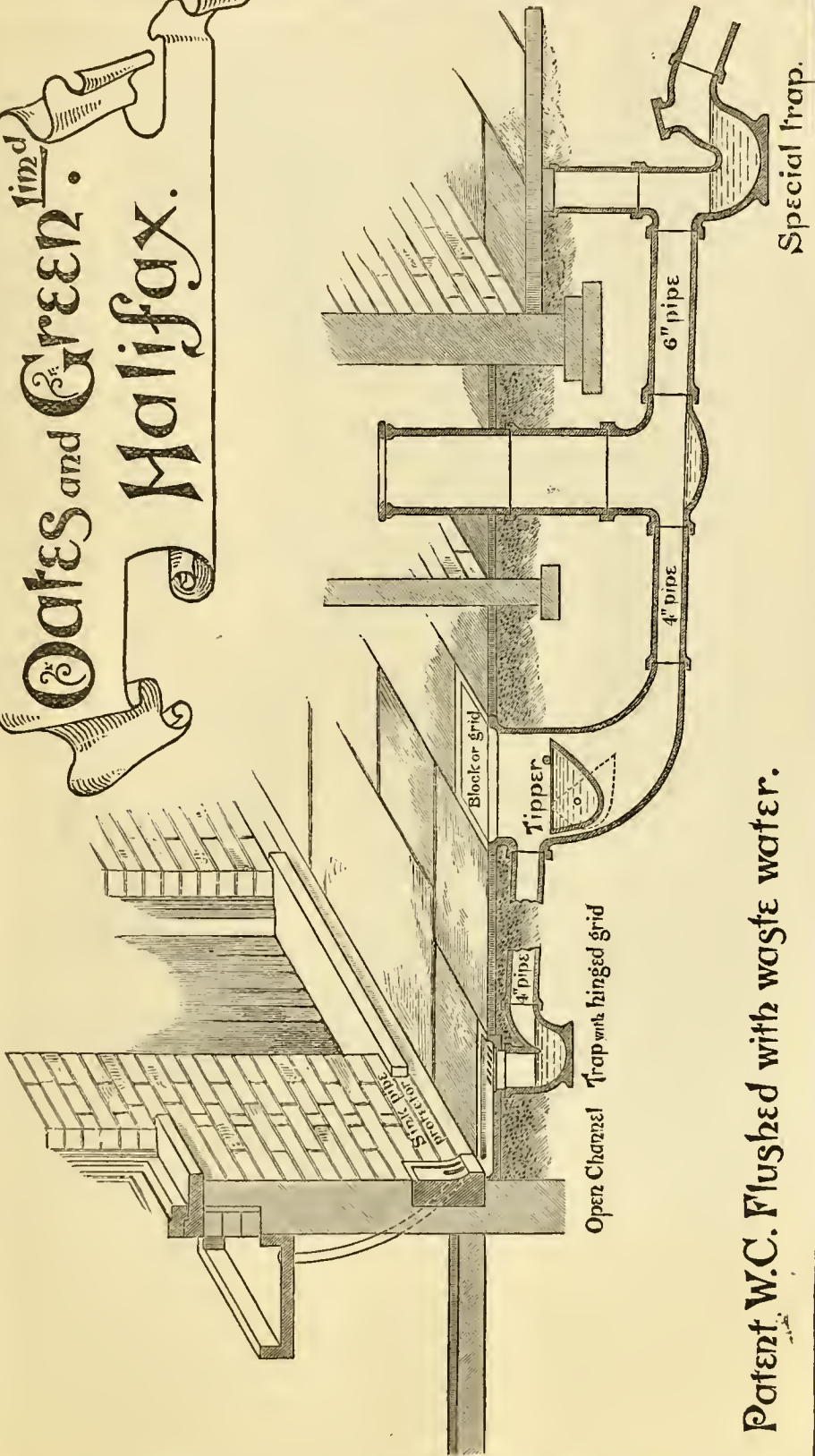
In addition to the advantages usually put forward in favour of waste-water closets, viz.:—that they do not freeze, that they entail no charge for water supply, and that they are automatic in action, they possess one feature which to my mind should not be lost sight of; I refer to the speedy removal of the slop water itself, and although I think it is desirable to have one “tipper” close to the foot of the closet-pan, I would advocate also the placing of a second “tipper” immediately beyond the dish-stone trap, more especially where the closet is situated at some distance from the house. The water discharged from a waste-pipe, say an inch in diameter, upon a trapped gully can have little, if any, flushing power upon a 4-inch drain pipe; and it is only necessary to examine the sides of even a smooth, highly-glazed gully-trap, where there is often a deposit even above the level of the seal, to realize how much greater must be the deposit upon the inside of the adjoining drain pipes.

Finally, there is one very important point to be considered. I believe that hitherto the Corporation have not advocated the introduction of a general water-carriage system in view of the possible strain that might be put upon the main sewers, and upon the sewage farm. I do not think that even with the ordinary wash-down water-closets the additional amount of sewage entering the sewers would noticeably affect their present capacity, or would be more than the farm could deal with. And with waste-water closets the addition would be hardly appreciable; at the farm the only difference would be that all the sewage proper of the town would be pumped on to the land instead of as at the present time two-sevenths pumped, and the remainder placed on the land by hand labour.

The following diagrams explain themselves; there are several makers beyond those whose appliances are represented, and the omission of their names must not be taken as a condemnation of their special apparatus. I think it would be wise to accept any design which comes up to our standard of sanitary requirements, leaving the choice to individual property owners.

In Fig. 1 it will be noticed that the tipper can be placed in any position between the closet and the discharge pipe from the sink ; the tipper is easily got at, and as the portion of the pipe immediately below the seat is hollowed out the excreta will always fall into water, and be ensured of removal by the flush. The makers of this pattern point out that with a 4-inch pipe leading into, and a 6-inch leading out of the basin a much more effective flush is obtained than when both pipes are of equal diameter.

# <sup>find</sup> **Oates and Green.** **Malifax.**



**Patent W.C. Flushed with waste water.**

**Fig. 1.**

Figs. 2, 2A, 3 and 3A, shew Messrs. Duckett & Son's arrangement both in section and plan. In the first, Fig. 2, which is only adapted to a house with a very short yard, the tipper has the discharge pipe from the sink immediately over it, in the second (Fig. 3) the tipper is placed immediately under the floor of the closet. Except for these main differences the two arrangements are identical. In Fig. 2a, the annular basin D refers especially to a moat surrounding the entrance to the discharge trap, and which ensures that there shall always be water, either in the moat itself, or the trap immediately under the closet seat into which excrement can fall. The makers of this closet have also introduced a form of pan with the view of preventing large articles being thrown down, and also to prevent that portion of the pan beneath the floor level and above the flush becoming soiled; its special feature consists in the bottom end of the upper pan, about on a level that is with the floor, being constructed with an aperture the shape somewhat of a Maltese cross.

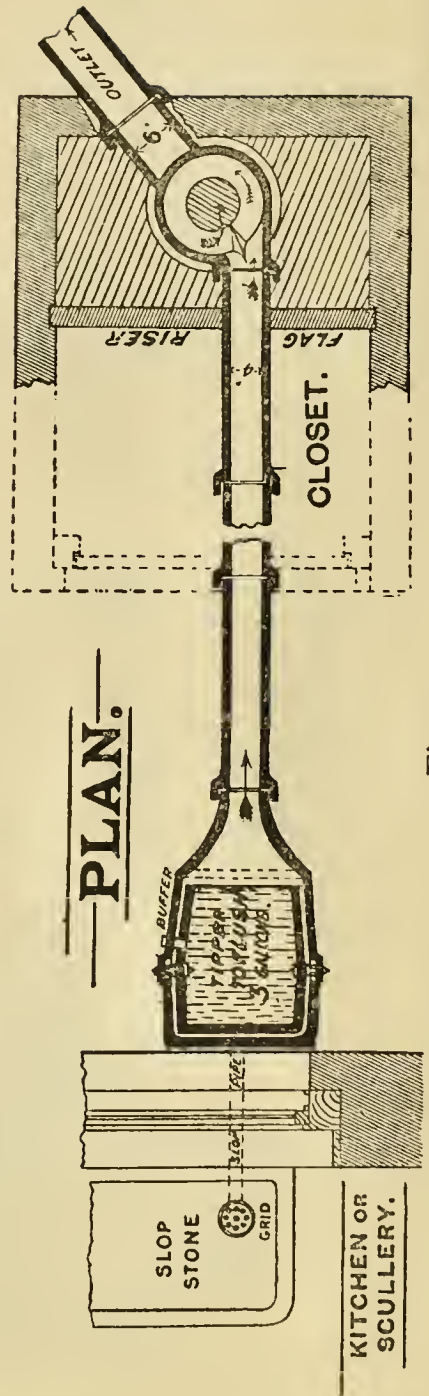


Fig. 2.



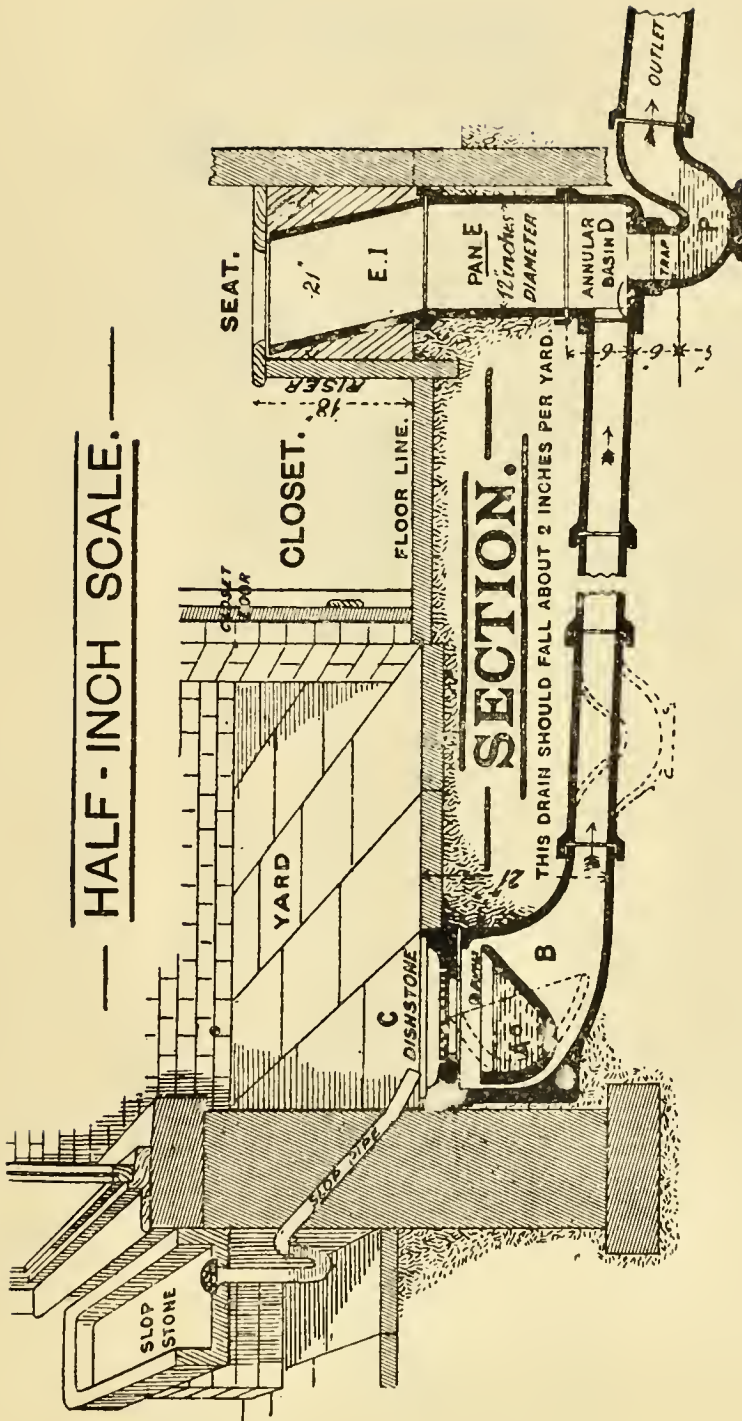


Fig. 2a.



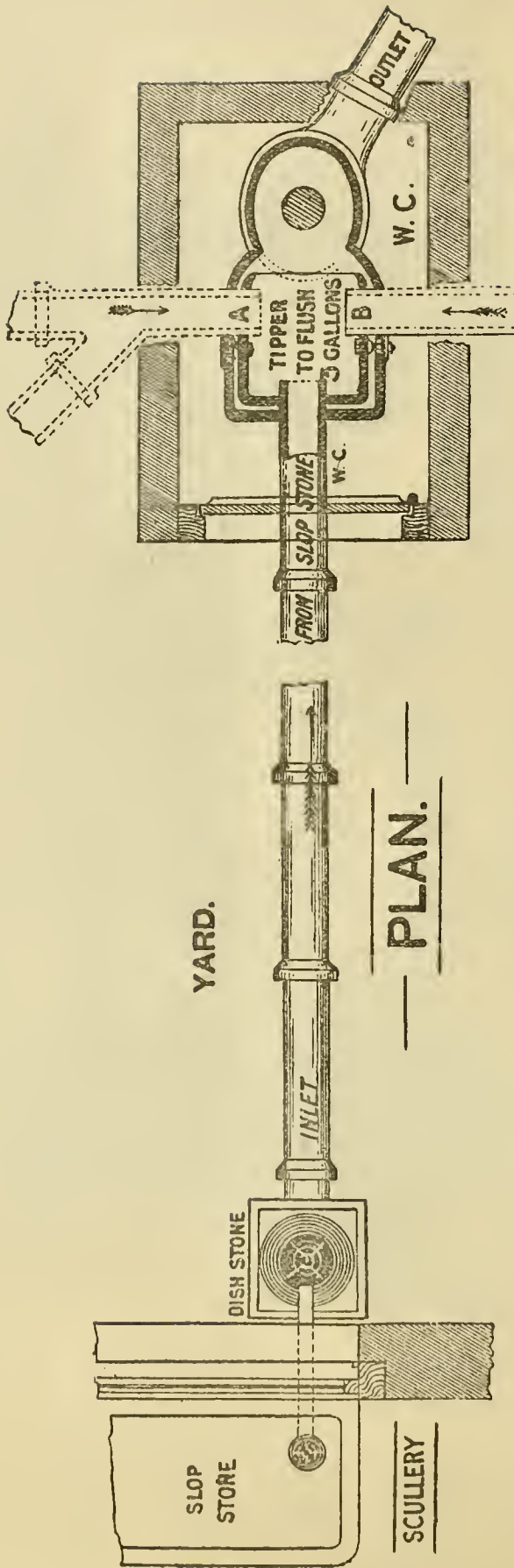


Fig. 3.

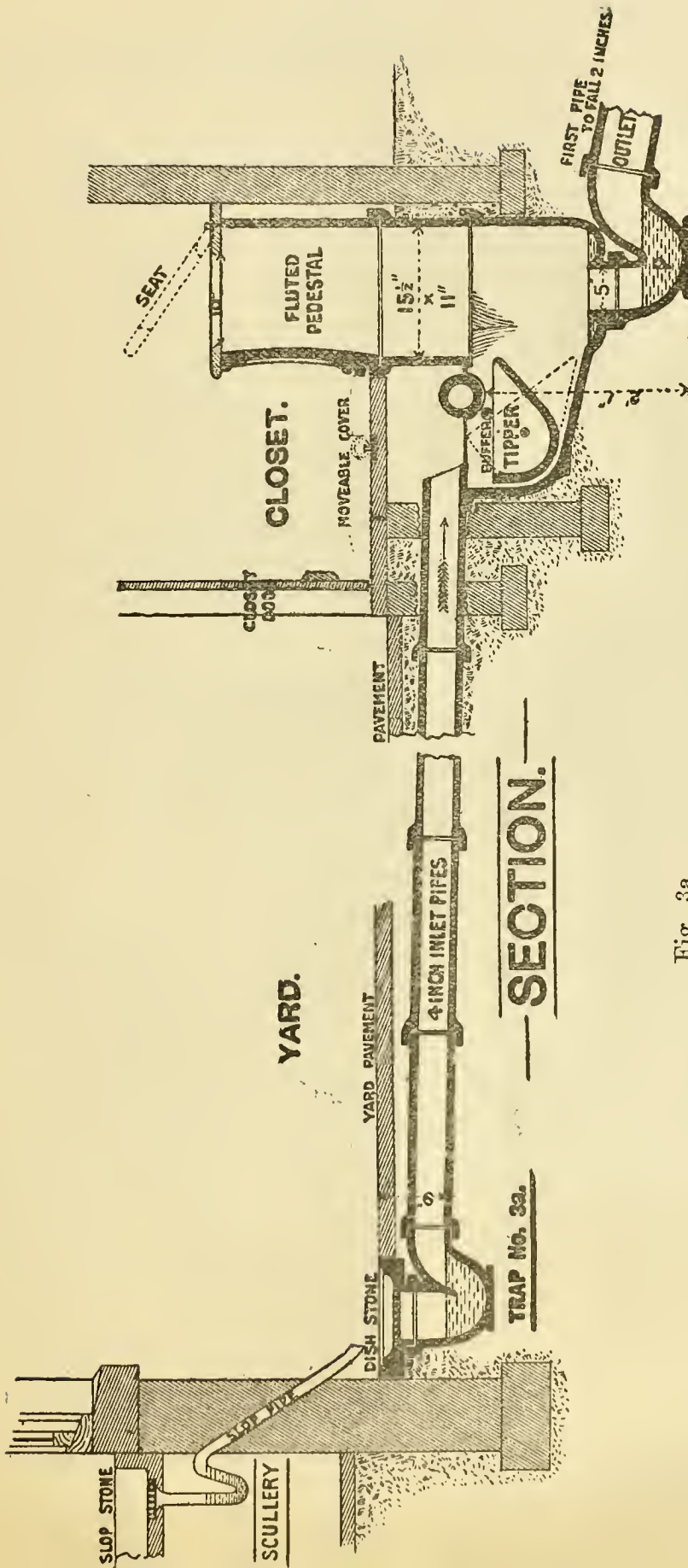


Fig. 3a.

In Fig. 4, Day's "Stafford" Closet, it will be seen the tipper is immediately under the seat, and that the excreta drops at once into it. About six inches below the level of the seat the pan widens out, thus reducing somewhat the possibility of fouling the sides. In case any article gets thrown into the tipper and prevents it working or chokes the drain, the pedestal is made to take up easily, when the tipper and all below it can readily be explored. The tipper in this as in the other makes mentioned is fitted with india-rubber buffers to prevent breakage.



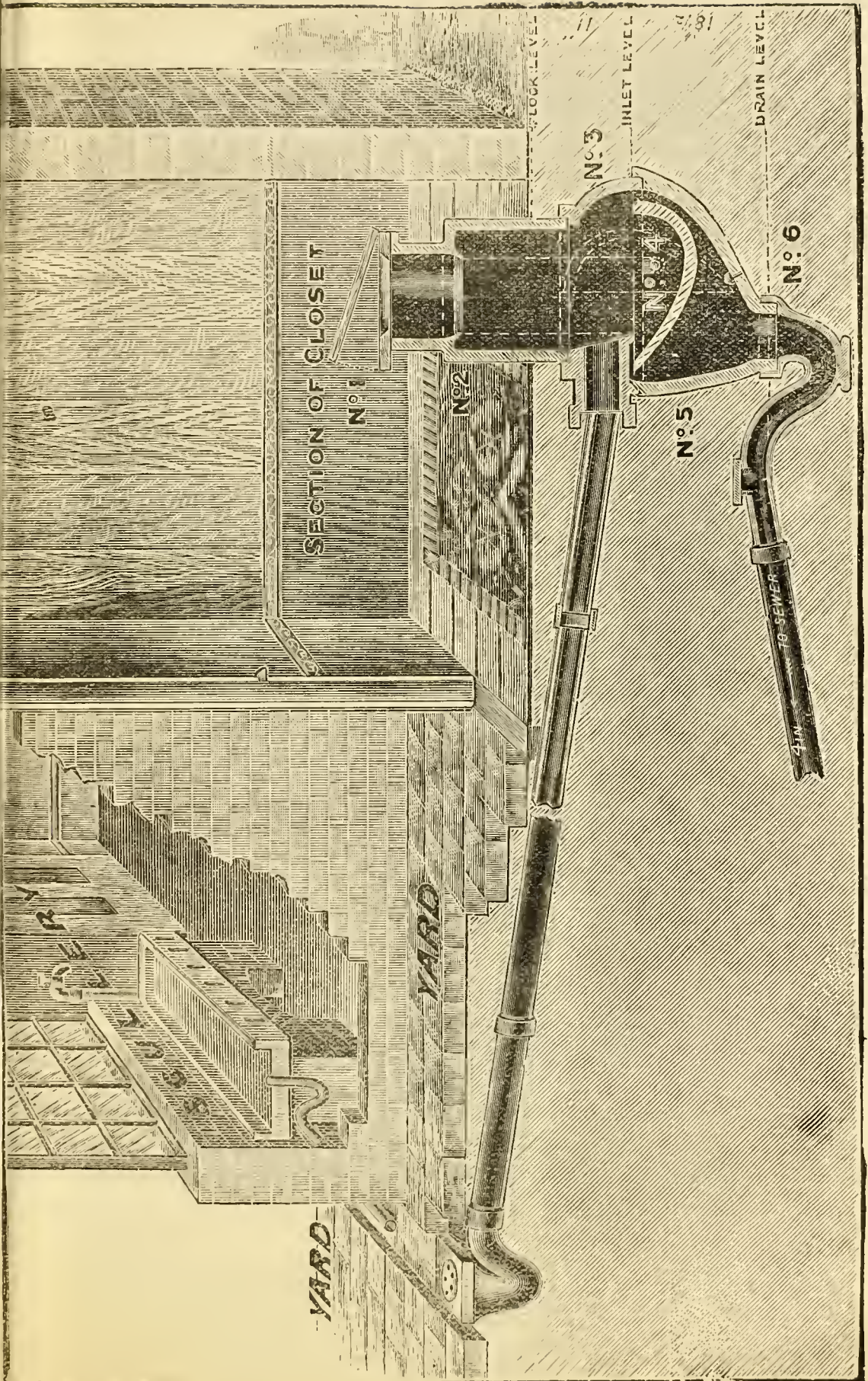


Fig. 4.



**Meteorology.**

I am indebted to Mr. George Latimer, the Curator of the Queen's Park, for the data enabling me to make the following report relating to 1894—

TABLE 22.—

1894.	Rain-fall in inches.	No. of Rainy Days.	Prevailing Wind Days.										Mean Temperature.			
			N	S	E	W	NW	NE	SW	SE	Maximum in shade.	Minimum in shade.	One foot deep.	Four feet deep.		
January	1·47	20	1	12	3	6	2	1	3	3	36·6	25·7	39·3	43·1		
February	1·46	16	...	6	2	7	...	1	8	4	40·4	25·9	39·6	42·9		
March ...	·78	10	...	6	1	7	7	1	2	7	48·4	26·7	40·9	43·8		
April ...	·56	14	...	7	5	2	1	2	5	8	58·2	34·2	49·1	45·7		
May ...	2·45	14	3	4	4	6	9	4	1	...	55·7	33·4	49·6	48·4		
June ...	2·48	17	2	5	4	9	6	...	3	1	64·4	41·9	55·7	51·3		
July ...	1·73	15	...	4	2	8	3	2	6	6	63·2	45·6	60·1	55·6		
August ...	2·68	18	...	5	3	11	6	...	4	2	64·0	45·7	58·7	55·7		
September	·68	4	13	...	3	...	5	9	...	...	58·0	37·7	55·6	55·7		
October...	2·79	12	6	6	2	3	3	6	1	4	51·3	35·6	50·0	53·5		
November	1·49	14	...	14	4	7	1	1	2	1	50·6	30·7	40·6	50·0		
December	1·42	15	...	3	...	8	6	1	3	10	45·3	29·3	41·8	46·9		
Total...	19·99	169	25	72	33	74	49	28	38	46						
Average...	1·66	14														

RAIN:—The total rain-fall for the year amounted to 19·99 inches, nearly four inches above that of 1893, which was however, a year of unusually little rain. The largest daily rain-falls were recorded on August 26th and October 27th, on each of which days three-quarters of an inch fell. The longest spell without any rain falling was from August 27th to September 22nd—a period of 27 days, and from May 28th to June 11th—15 days—there was not a single day without rain.



TEMPERATURE :—The highest temperature in the shade, 79 degrees F., was recorded on August 2nd, and the lowest, three degrees F., on January 6th.

WIND :—It is interesting to notice how very little the North, East, or North-Easterly wind prevails ; for seven months of the year on no single day was there a North wind, and an East wind only on 33 days out of the 365.

I have again to express my thanks to the Sanitary Inspector (Mr. Wm. Urquhart) for the thorough and conscientious manner in which he has entered into his work ; there is hardly, I think, another town in England of the size of Crewe with only one Sanitary Inspector, and this fact added to the knowledge of the rapid increase of the town is sufficient to indicate that Mr. Urquhart's time is fully occupied. I am indebted also to many correspondents who act as amateur inspectors ; some of them give me an opportunity of acknowledging my indebtedness for information which is frequently very valuable ; there are a few however, whose modesty will not allow their identity to be divulged, and this is the only opportunity I have to express to them my thanks, and also the hope that they will continue to keep me informed of any insanitary conditions in the town capable of being remedied.

Finally, my thanks are due to the Chairman and each individual Member of the Health Committee, for the readiness with which they have at all times entered into every recommendation I have considered it my duty to make, and for the fair-minded manner in which they have discussed them.

I beg to remain,

Mr. Chairman and Gentlemen,

Faithfully yours,

*Herbert Jones*

TABLE A.

TABLE OF DEATHS during the year 1894, in the Urban Sanitary District of Crewe (area in acres, 2,193 ; population (1891) 32,783), classified according to Diseases, Ages, and Localities.

Names of Localities adopted for the purpose of these Statistics; public institutions being shown as separate localities.	Mortality from all causes, at subjoined ages.							Mortality from subjoined causes, distinguishing deaths of children under five years of age.																						
	At all ages	Under 1 year	1 and under 5	5 and under 15	15 & under 25	25 & under 65	65 & upwards	Smallpox	Scarlatina	Diphtheria	Membranous Croup	Fevers					Cholera	Erysipelas	Measles	Whooping Cough	Diarrhoea and Dysentery	Rheumatic Fever	Ague	Phtisis	Bronchitis, Pneumonia, and Pleurisy	Heart Disease	Injuries	All other Diseases.	Total	
												Typhus	Intertic or Typhoid	Continued	Relapsing	Puerperal														
Central ward .....	149	45	12	7	8	45	32	Under 5... 5 upwards	..	1	..	..	..	3	..	..	4	3	..	1	..	..	..	..	13	21	14	1	29	57
West ward .....	130	39	17	6	7	45	16	Under 5... 5 upwards	1	1	..	..	..	1	..	..	3	4	2	..	..	..	..	..	7	16	13	1	44	92
North ward .....	128	56	23	5	6	26	12	Under 5... 5 upwards	2	..	..	..	2	..	..	..	8	3	..	1	..	..	..	..	5	20	7	1	23	49
South ward .....	113	34	20	4	3	38	14	Under 5... 5 upwards	3	..	..	..	2	..	..	..	4	3	..	..	..	..	..	..	10	14	5	..	34	59
L. & N. W. Ry. Co.'s Hospital	...	...	..	...	...	...	...	Under 5... 5 upwards	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total .....	520	174	72	22	24	154	74	Under 5... 5 upwards	6	1	..	..	5	7	..	2	19	13	..	4	..	..	..	35	71	39	1	133	246	
									2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	5	5	128	274	

General death-rate, 14·4 per 1,000 population.

Infantile death-rate, 143 per 1,000 births registered.

TABLE B.

TABLE OF POPULATION, BIRTHS, AND OF NEW CASES OF INFECTIOUS SICKNESS, coming to the knowledge of the Medical Officer of Health, during the year 1894, in the Urban Sanitary District of Crewe; classified according to Diseases, Ages, and Localities:—

Names of Localities adopted for the purpose of these Statistics ; Public Institutions being shown as separate localities.	Population at all Ages.		Registered Births.	New cases of sickness in each locality, coming to the knowledge of the Medical Officer of Health.						Number of such cases removed from their homes in the several localities for treatment in Isolation Hospital.				
	Census 1891	Estimated to middle of 1894		Aged under 5 or over 5.	Smallpox.	Scarlatina.	Diphtheria.	Enteric or Typhoid.	Puerperal Fever.	Erysipelas	Smallpox	Scarlatina	Diphtheria	Enteric or Typhoid
CENTRAL WARD .....	...	9,545	...	Under 5 ... 5 upwards	...	5	1	...	...	...	...	...	...	...
WEST WARD .....	...	8,710	...	Under 5 ... 5 upwards	...	9	...	...	...	...	...	...	...	...
NORTH WARD.....	...	8,260	...	Under 5 ... 5 upwards	...	9	...	...	...	...	...	...	...	...
SOUTH WARD .....	...	9,435	...	Under 5 ... 5 upwards	...	4	...	...	...	...	...	...	...	...
TOTALS.....	32,783	35,950	1215	Under 5 ... 5 upwards	...	27 78	1 3	...	...	...	...	...	...	...

NOTES.—1.—The Smallpox Hospital is situated in the West Ward.

2.—The Wards have been entirely re-arranged, it is not possible therefore to give their respective populations at the 1891 Census.

3.—Notification of Infectious Disease is *not* compulsory.

SUMMARY OF TABLE 24.—

			Number of Deaths.	
I.	ZYMOTIC DISEASES ...	...	...	65
	1. Miasmatic diseases	...	40	...
	2. Diarrhoeal „	...	13	...
	3. Malarial „	...	...	...
	4. Venereal „	...	1	...
	5. Septic „	...	11	...
II.	PARASITIC DISEASES	...	2	2
III.	DIETIC DISEASES ...	...	5	5
IV.	CONSTITUTIONAL DISEASES ...	...	100	100
V.	DEVELOPMENTAL DISEASES ...	...	51	51
VI.	LOCAL DISEASES ...	...	...	248
	1. Nervous system	...	51	...
	2. Organs of special sense	...	...	...
	3. Circulatory system	...	43	...
	4. Respiratory „	...	116	...
	5. Digestive „	...	25	...
	6. Lymphatic „	...	...	...
	7. Glandular „	...	...	...
	8. Urinary „	...	3	...
	9. Reproductive „	...	9	...
	10. Bones and Joints	...	1	...
	11. Integumentary system	...	...	...
VII.	VIOLENCE	...	...	11
	1. Accidents	...	8	...
	2. Homicide	...	1	...
	3. Suicide	...	2	...
VIII.	ILL-DEFINED AND NOT SPECIFIED CAUSES...	...	38	38
TOTAL ...			520	520

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TABLE 24.—Classification of Deaths in the Borough of Croydon.

Class I.—ZYMOTIC DISEASES. Order 1.—Miasmatic	0-1 Year.	1-6	6-16	16-25	25-45	45-65	Over 65	Total 1891	Total 1892
1 Small Pox .....	..	..	..	..	..	..	..	..	..
2 Measles .....	..	..	..	..	..	..	..	..	37
3 Scarlet Fever .....	1	5	1	..	..	..	..	8	20
4 Typhoid .....	..	..	..	..	..	..	..	..	..
5 Enteric Typhoid .....	..	..	1	..	..	..	..	6	10
6 Diphtheria .....	..	..	2	..	..	..	..	2	19
7 Whooping Cough .....	8	11	..	..	..	..	..	19	15
8 Influenza .....	..	1	..	..	..	..	1	6	8
9 Other Diseases .....	..	..	..	..	..	..	..	..	..
Order 2.—Dirtorial	..	..	..	..	..	..	..	..	..
Dysentery and Dysentery .....	6	7	..	..	..	..	..	13	84
Order 3.—Malarial	..	..	..	..	..	..	..	..	..
Order 4.—Venereal	..	..	..	..	..	..	..	..	..
Syphilis .....	1	..	..	..	..	..	..	1	3
Order 5.—Septic	..	..	..	..	..	..	..	..	..
1 Erysipelas .....	2	..	..	..	..	..	..	2	4
2 Pyæmia, Septicæmia .....	..	..	1	..	..	..	..	2	..
3 Puerperal Fever .....	..	..	1	6	..	..	..	7	5
II.—PARASITIC DISEASES.	..	..	..	..	..	..	..	..	..
Thrush .....	2	..	..	..	..	..	..	2	2
III.—DIETIC DISEASES.	..	..	..	..	..	..	..	..	..
1 Alcoholism .....	..	..	..	..	..	..	..	..	..
2 Intoxication of Infancy .....	4	..	..	..	..	..	..	4	1
3 Tetanus .....	..	..	..	..	..	..	..	..	..
IV.—CONSTITUTIONAL DISEASES.	..	..	..	..	..	..	..	..	..
1 Rheumatism .....	..	..	4	..	..	..	..	4	1
2 Rheumatism, ever .....	..	..	..	..	..	..	..	..	..
3 Gout .....	..	..	..	..	..	..	..	..	..
4 Cancer .....	..	..	..	..	..	..	..	..	..
5 Tubercles Mesentericæ .....	15	3	..	..	2	11	7	20	21
6 Tubercular Peritonitis .....	..	..	..	..	..	..	..	18	20
7 Tubercular Meningitis .....	3	5	..	..	..	..	..	..	..
8 Hydrocephalus .....	..	..	..	..	..	..	..	..	9
9 Phtisis .....	..	..	2	10	16	7	..	35	32
10 Chronic Catarrhs of Tuberculous .....	..	..	1	2	1	..	..	5	..
11 Diabetes .....	..	..	..	..	..	..	..	..	..
12 Anæmia .....	..	..	2	..	..	..	1	4	3
V.—DEVELOPMENTAL DISEASES.	..	..	..	..	..	..	..	..	..
1 Premature Birth .....	23	..	..	..	..	..	..	23	17
2 Congenital Malformations .....	2	..	..	..	..	..	..	2	3
3 Old Age DISEASES.	..	..	..	..	..	..	..	..	..
VI.—LOCAL DISEASES.	..	..	..	..	..	..	..	..	..
Order 1.—Nervous System.	..	..	..	..	..	..	..	..	..
1 Inflammation of Brain .....	..	1	..	1	2	15	8	25	32
2 Apoplexy, Cerebral Softening .....	..	..	..	..	..	..	..	..	..
3 Insanity .....	..	..	..	..	..	..	..	..	..
4 Epilepsy .....	..	..	..	..	2	1	..	18	25
5 Convulsions, Epilepsia .....	16	2	..	..	..	..	..	4	..
6 Convulsions of Spinal Cord .....	..	..	..	..	..	..	..	..	..
7 Other Diseases .....	..	..	..	..	1	2	..	3	6
Order 2.—Organs of Special Sense	..	..	..	..	..	..	..	..	..
1 Ear .....	..	..	..	..	..	..	..	..	..
Order 3.—Circulatory System	..	..	..	..	..	..	..	..	..
1 Disease of Heart, Valvular .....	..	..	1	4	3	2	10	5	..
2 Disease of Heart, Undistinguished .....	..	3	1	3	11	11	11	29	23
3 Syncope .....	..	..	..	..	..	..	..	1	..
4 Anæmia .....	..	..	..	..	1	..	..	1	..
5 Other Diseases .....	..	..	..	..	..	..	..	..	..
Order 4.—Respiratory System	..	..	..	..	..	..	..	..	..
1 Laryngitis .....	..	1	..	..	..	..	..	1	1
2 Croup .....	..	..	..	..	..	..	..	..	..
3 Bronchitis .....	29	12	..	..	..	..	..	1	3
4 Pneumonia .....	13	17	4	1	3	7	13	63	68
5 Pleurisy .....	4	..	..	..	..	..	..	45	90
6 Other Diseases .....	..	..	..	..	..	..	..	1	..
Order 5.—Digestive System	..	..	..	..	..	..	..	..	..
1 Diphtheria .....	3	1	..	..	..	..	..	6	2
2 Enteritis of Stomach .....	..	..	..	..	..	..	..	4	4
3 Enteritis .....	..	..	1	1	1	1	1	6	3
4 Obstructive Diseases of Intestine .....	..	..	..	..	..	..	..	3	2
5 Peritonitis .....	1	1	1	3	..	..	1	6	7
6 Ascites .....	..	..	..	..	..	..	..	..	..
7 Cirrhosis of Liver .....	..	..	..	..	..	..	..	1	1
8 Jaundice, &c. .....	..	..	..	..	..	..	..	1	..
9 Other Diseases .....	..	..	..	..	..	2	1	2	1
Order 6.—Lymphatic System	..	..	..	..	..	..	..	..	..
1 Splenitis .....	..	..	..	..	..	..	..	..	3
Order 7.—Glandular System	..	..	..	..	..	..	..	..	..
1 Bronchocle .....	..	..	..	..	..	..	..	..	..
2 Addison's Disease .....	..	..	..	..	..	..	..	..	..
3 Xanthoma .....	..	..	..	..	..	..	..	..	..
Order 8.—Urinary System	..	..	..	..	..	..	..	..	..
1 Nephritis .....	1	..	1	1	..	..	..	3	3
2 Catarrh of Uterus .....	..	..	..	..	..	..	..	..	..
3 Other Diseases .....	..	..	..	..	..	..	..	..	1
Order 9.—Reproductive System	..	..	..	..	..	..	..	..	..
1 Male Organs .....	..	..	..	..	..	..	..	..	..
2 Female Organs .....	..	..	1	1	1	..	..	2	..
3 Abortion .....	..	..	..	..	..	..	..	1	1
4 Periparturient Convulsions .....	..	..	..	..	..	..	..	..	..
5 Puerperal Convulsions .....	..	..	..	..	..	..	..	..	..
6 Other Accidents of Child Birth .....	..	..	1	3	..	..	..	4	6
Order 10.—Bones and Joints	..	..	..	..	..	..	..	..	..
1 Caries, Necrosis .....	..	..	..	..	..	..	..	..	..
2 Arthritis .....	..	..	..	..	1	..	..	1	1
Order 11.—Integumentary System	..	..	..	..	..	..	..	..	..
1 Eczema .....	..	..	..	..	..	..	..	..	..
2 Ulcer of Leg .....	..	..	..	..	..	..	..	..	..
VII.—DEATHS FROM VIOLENCE	..	..	..	..	..	..	..	..	..
1 Suffocation .....	2	1	..	..	1	..	..	2	2
2 Burn .....	..	..	3	1	..	..	..	4	11
3 Other Causes .....	1	..	..	..	..	..	..	1	..
Order 2.—Homicide	..	..	..	..	..	..	..	..	..
Order 3.—Suicide	..	..	..	..	..	..	..	..	..
1 Drowning .....	..	..	..	..	..	..	..	..	..
2 Poison .....	..	..	..	..	..	..	..	..	..
3 Cut or Stabbed .....	..	..	..	..	..	..	..	..	..
VIII.—DEATHS FROM UNDETERMINED AND NOT SPECIFIED CAUSES.	..	..	..	..	..	..	..	..	..
1 Dropsy .....	..	..	..	..	..	..	..	..	1
2 Debility .....	24	1	..	..	..	..	..	25	5
3 Marasmus .....	6	1	..	..	..	..	..	7	3
4 Tumour .....	..	..	..	..	..	..	..	1	1
5 Abscess .....	..	..	..	..	..	..	..	..	..
6 Natural Causes .....	3	2	..	..	..	..	..	5	3
Total .....	174	72	22	24	67	87	74	530	694





